

MONT BLANC AND VILLAGE OF CHAMOUNI.

WANDERINGS
AMONG
THE HIGH ALPS.

BY
ALFRED WILLS,

OF THE MIDDLE TEMPLE, BARRISTER-AT-LAW

My joy was in the wilderness, to breathe
The difficult air of the iced mountain's top,
Where the birds dare not build, nor insect's wing
Flit o'er the herbless granite.

Second Edition,
REVISED, WITH ADDITIONS

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TO
MY GUIDE AND FRIEND,
AUGUSTE BALMAT,
MY TRIED AND FAITHFUL COMPANION,
IN MANY DIFFICULTIES
AND SOME DANGERS,
I DEDICATE THESE PAGES,
WITH FEELINGS OF
HEARTY RESPECT AND AFFECTIONATE REGARD.

A. W.

PREFACE

TO

THE FIRST EDITION.

My aim, in the following pages, has been twofold; on the one hand, to convey some idea of the glories of the higher and less accessible regions of the Alps, and if possible to stimulate others to seek those magnificent scenes amongst which I have myself passed some of my happiest days; on the other, to point out some few of the more interesting excursions which lie almost at the traveller's door, at such places as Chamouni and Interlaken; but which, from the routinism or apathy of the inhabitants, are hardly known

to themselves—much less to strangers. I have tried to make my experience practically useful to the pedestrian, by inserting those particulars with regard to guides, expense, and the special difficulties of each expedition, which it is always his first care to ascertain.

It has always appeared to me that ladies might see much more of the grander scenery of the High Alps than they usually do; and it will be a pleasure to me, if I have succeeded in showing, by the instances recorded in the following pages, how much it is really practicable, with due care and sufficient precautions, for one of the gentler sex to undertake. The expedition which forms the subject of Chapter II is as feasible for any other lady, as for the lady who actually performed it—who is a fair, but by no means a particularly good, walker.

On this, as on many other occasions, I was indebted for much of the pleasure and success of the enterprize, to the care, prudence and good management of Balmat. I

have no fear that any one who knows him will think that I have spoken in exaggerated terms of his merits; but it is only due, both to him, and to myself, to mention that I have had the amplest opportunity of knowing him, and of testing both his capacity as a guide and his worth as a man. It will be seen that among the Alps we have encountered together both difficulty and danger; and in the winter of 1854-5, he was an inmate of my house, under circumstances very trying to himself, for more than three months. He had hardly set foot in England, when he was assailed by a very severe attack of ophthalmia. It required the utmost skill of the oculist to save his eyesight, and during the long and wearisome confinement which ensued, I never heard one murmur or one expression of despondency escape his lips. He had the singular advantage of being selected by Professor Forbes, as his attendant throughout his protracted series of observations on the Mer de Glace and in other parts of Switzerland—a companionship by

which (as will be seen) he has largely profited—and equally honourable testimony to his intelligence and his character is borne by that distinguished writer, both in his “Travels through the Alps and Savoy,” and in the chapters on Switzerland appended to his “Norway and its Glaciers.”

The illustrations are from the pencil of my wife. The views of our encampment at the Tacul and from the Gumihorn were taken on the spot. The two views of the final ascent of the Wetterhorn have been drawn from description, with such assistance as I could render, by way of suggestion and correction, during their progress; but they are more successful as accurate representations of nature than could reasonably have been expected, and have caught the exact *character* of the scenes depicted. Neither is in the slightest degree exaggerated, and the view of the actual crest and the overhanging cornice could hardly have been more true to the reality, had it been taken on the spot; though, of course, every at-

tempt to delineate such scenes must fall far short of the grandeur and sublimity of nature.

With regard to the botanical notices occurring in the following pages, as I should be unwilling to affect a kind of knowledge which I do not possess, I must explain that I am no botanist. It has been my habit, however, to make collections of the wild flowers of the different localities, which I have carefully preserved, and which have been named for me by my friend, Mr. James Atkins, of Painswick, a gentleman known in the botanical world, in whose company I had the advantage of travelling for six weeks, in 1852, and who has kindly furnished me with the matter contained in the appendix. As the flowers have been secured in their places as soon as they were dry, and a memorandum made of where they were found, I have the best reason for referring them to the localities to which I have ascribed them: and imperfect as the notices must be, I hope they may

still be acceptable to those who are interested in botanical pursuits. If I have sometimes mixed the common and the rare with an unphilosophical want of discrimination, it must be remembered that I have looked upon nature with the eye of a lover of the picturesque rather than a botanist, and I have an excuse in the feeling so touchingly expressed by a great poet:—

“ While allured
From vale to hill, from hill to vale led on,
We have pursued, through various lands, a long
And pleasant course ; flower after flower has blown,
Embellishing the ground that gave them birth,
With aspects novel to my sight ; but still
Most fair, most welcome, when they drank the dew
In a sweet fellowship with kinds beloved
For old remembrance’ sake.”*

* Wordsworth.

LONDON :

JUNE 10, 1856.

PREFACE

TO

THE SECOND EDITION.

It is with great pleasure that I find myself called upon to publish a Second Edition of this little work ; and I am glad to take the opportunity of expressing my grateful sense of the genial spirit in which it has been received. The numerous instances of pleasant intercourse with others to which it has led, and the two or three hearty, and I hope life-long, friendships, which I owe entirely to the publication of my "Wanderings," are striking proofs, were any needed, that a man who attempts to relate honestly and unaffectedly

what he has to say, will rarely fail to meet with a candid and generous reception.

I have to thank several unknown friends for suggestions and corrections which have reached me from time to time, and which I believe they will find attended to in this Edition. Nothing, however, connected with the publication of the book has given me more gratification than the trivial character of the errors which have been pointed out. No serious inaccuracy of any kind has been called to my notice. I am happy to say that two or three gentlemen who have followed me in ascending the Wetterhorn, have confirmed most satisfactorily the correctness of my description.

The addition of a chapter touching the ascent of Mont Blanc, seems almost to call for a word of apology; but we have grown so familiar with the name of Mont Blanc, that I think we are apt to fancy we know him better than we really do. I had read pretty nearly everything that has been published concerning the ascent, but I found so much that was

unexpected, and the reality so far exceeded all my previous conceptions, that I cannot help hoping there may be something to interest others in what I found so new to myself. Let no man who has health and strength to ascend Mont Blanc be deterred from the expedition by the idea that it is common-place, beneath his notice, or too well-known to excite his curiosity. I believe no parallel can be found in the glacier-world to the ice scenery between the Grands Mulets and the foot of the Corridor.

The chapter should have taken its place among those which relate to Chamouni, but it was originally intended to form part of another series of "Wanderings;" it was only while the present volume was passing through the press, that I found it necessary, owing to other engagements, to abandon the idea, for the present, at least.

The chapter entitled "Hints to Pedestrians" I have omitted from the body of the work. The most practical portions will be found reprinted in the Appendix.

Three wood-cut maps accompany this Edition. They make no pretension to accuracy ; they are not intended, and must not be relied upon, as guide-maps, but are inserted merely for the purpose of rendering the description more intelligible.

ESHER,

APRIL 27, 1858.

CONTENTS.

CHAPTER I.

THE COL DU GEANT.

Regulations of the Chamouni Guides—Col de Vosa—Col de Balme—Reconnoitring Excursion to the Jardin—Preparations—Night at the Montanvert—Beautiful Moonlight Scene—Start for the Col du Géant—Sunrise upon the Mer de Glace—"Pierre l'Echelle"—"The Difficulties"—"The Dangers"—Fall into a Crevasse—Arrival at the Col—Difficult Descent—Guides—Expense. 1

CHAPTER II.

A NIGHT ON THE MER DE GLACE, AND A LADY'S VISIT TO THE JARDIN.

Giving the "Chef-Guide" the Slip—How to carry Cream in the Mountains—Dangers of the Glaciers—Arrival at the Tacul—An Airy Lodging—"Difficulties" of the Col du Géant revisited—Supper on the Moraine—Night among the Glaciers—A Cold Bath—Useful Coffee-pot—Sunrise on the Mer de Glace—Les Egralets—The Jardin—Return to the Montanvert—Descent to Chamouni in the Dark—Remarks—Desirable Arrangement. 33

CHAPTER III.

THE INUNDATIONS OF 1852.

St. Rémy—Heavy Rain—German Students and Noisy Italians	
—The St. Bernard—The Morgue—Descent in the Rain—	
Swollen Stream—Tidings of Disaster—Broken Bridge—Night	
at Sembranchier—Mountain Walk to Martigny—Aspect of the	
Valley of Trient—Mud Torrent—Col de Balme—Bad Quarters	
—The Valley of Chamouni—Destructive Ravages of the Flood	
—State of the Road to Geneva—Bonnevillè—Rapid Rise of	
the Waters.	60

CHAPTER IV.

THE NEIGHBOURHOOD OF CHAMOUNI—EXPEDITION BENEATH
THE AIGUILLES OF MONT BLANC.

Beautiful View from the Charmoz—Excursion from the Montan-	
vert to the Glacier des Bossons—Bad Guides, and Dangerous	
Walk beneath the Glaciers—Wild Mountain Tarn—The Pierre	
l'Echelle—Glacier des Bossons—Rain and Snow—The "Régle-	
ments" again—New Ground for Explorers.	84

CHAPTER V.

PASS OF THE MONTE MORO.

La Burca—Marmot for Supper—A Rainy Day—Mending Stock-	
ings—Sunrise upon Monte Rosa—The Monte Moro—A Glissade	
—Arrival at Saas—Remarks—Botany.	95

CHAPTER VI.

THE VALLEY OF SAAS AND THE VALLEY OF FEE.

From Visp to Stalden—Sudden arrival of Autumn—Butterflies—	
Sour Bread and Garlic—Stalden to Saas—Change of Climate—	
Avalanches and Assassins—Saas—The Inn—A model Kitchen	
—The Curé—Valley of Fée—Annual Fête—A "Strapping Wo-	
man"—Fee-Gletscher-Alp—Advance of the Glaciers—Flora of	
the Fee-Alp—La Tête—Glacier of Fée—Ancient Glaciers—The	
Balfrin—Crossing the Bider Glacier under difficulties—Dange-	
rous Descent—The Allelein Glacier.	107

CHAPTER VII.

PASSAGES OF THE ALLELEIN GLACIER, FROM SAAS TO
ZERMATT.

Start by Candle-light—Mountain sheep—Perilous scramble—
Basin of the Allelein Glacier—Garlic—A Theological Guide—
Deep Snow—Precipices of Ice—Kindness of the Curé—Valley
of Täsch—Hunting the Marmot—A Race—The “Strong Man
of Saas”—The Curé’s Night-walk—Valley of St. Nicholas—
View of the Matterhorn—Zermatt—Remarks. 136

CHAPTER VIII.

THE PASSAGE OF THE FINDELEN GLACIER, ADLER PASS,
OR COL IMSENG, FROM SAAS TO ZERMATT.

Pass discovered by the Curé—The Mattmarksee—Tame Chamois
—A Night in the Hay—Ascent to the Allelein Glacier—Flowers
—Magnificent Prospect—Beautiful Crevasses—The Col Imseng
—Vegetation close to the Summit—The Monte Rosa Chain—
Intense Cold—Fearful Descent—The Curé on the Rocks—The
Curé among the Crevasses—Another Race—Effect of a hard
day’s work. 151

CHAPTER IX.

THE HOCHTHALIGRAT AND THE NEIGHBOURHOOD OF
ZERMATT.

The Riffelberg and its Inn—The Hochthaligrat—Beauty of the
Flowers—Sublime Prospect—Monte Rosa—The Matterhorn—
Bernese Chain—The Schwarzsee—Curious optical Phenomen-
on—Glacier of Zmutt—The Col d’Erin—The Val d’Anniviers
—Barbarism of the Inhabitants. 182

CHAPTER X.

PASS OF ST. THEODULE, FROM ZERMATT TO CHATILLON.

Ascent to the Glacier—A fantastic Nook—Taking the wrong
Track—Dangerous Crevasses—Carelessness of the Zermatt
Guides—Specks on the Snow—A Sea of Mist—A dreary Abode
—An extraordinary Character—His tragical Fate—An icy
Tomb—Val Tournanche—Short Commons and dirty Quarters
—A long Walk to Breakfast—Chatillon—Remarks. 197

CHAPTER XI.

THE TORRENTHORN, THE OESCHINEN LAKE, AND THE DISTRICT
OF THE GHEMMI.

Ascent of the Torrenthorn—Startling approach to a Precipice—
All the Alps at one view—A novel Paint-brush—The Ghemmi
—The Schwarenbach—A “*véritable Voleur*”—Glaciers of the
Wildstrubel—The Oeschinen Lake—Profusion of Wild Fruits—
Force of the Torrent—A freezing Bath—Frutigen—Cordial
reception. 216

CHAPTER XII.

EXCURSIONS AND EXPLORATIONS IN THE NEIGHBOURHOOD
OF INTERLAKEN.

Unknown Treasures of Scenery about Interlaken—The Harder
—Dangerous grassy Slopes—Tragical fate of a Lady—Magni-
ficent Precipices—An uncomfortable Seat—Above the Staub-
bach—The Gumihorn—A second Jungfrau—Beautiful Wood-
land Path—Deep Snow—Striking Panorama—An intractable
Steed. 234

CHAPTER XIII.

THE PASSAGE OF THE TSCHINGEL GLACIER, FROM
LAUTERBRUNNEN TO KANDERSTEG.

The Laueners—Thunder-storm—The Jungfrau by Moonlight—
Upper Valley of Lauterbrunnen—A rough Ladder—The Gla-
cier—Rash Bees and Butterflies—A Herd of Chamois—Ano-
ther Storm—A wet Walk—Kandersteg—Frutigen—A Mas-
querade. 247

CHAPTER XIV.

ASCENT OF THE WETTERHORN.

Resolution to ascend the Wetterhorn—“Sampson”—Lauener—
Start from Grindelwald—Description of the Wetterhorn—Boh-
ren—The Enge—The Flag—Salute from below—Sunset—
Night Encampment—Uncomfortable Quarters—Solemn Scene
—Early Morning—Rock difficulties—The Upper Plateau—
Pirates—The last Rocks—Hazardous Ascent—Overhanging
Cornice—Startling arrival at the Summit—Narrow Edge—
Magnificent Panorama—Seen from Grindelwald—Planting the

Flag and the Fir-tree—Failure of previous attempts—Awful descent—"To the health of the Wetterhorn"—A race on the Rocks and a roll on the Ice—Troublesome flock of Sheep—Feu de Joie—Safe arrival—Black Faces—Excitement at Grindelwald—Remarks. 261

CHAPTER XV.

ASCENT OF MONT BLANC.

Interesting associations connected with Mont Blanc—Fickle Weather—Balmat a true Prophet—Pierre L'Echelle—The Frozen Vale—The Grands Mulets—Avalanches—Uncomfortable Night—Threatening Weather—Ascent resumed—The Petit Plateau—A Gardener in trouble—The Grand Plateau—The Corridor—The Mur de la Côte—Terrible wind—The Calotte—The Summit—Mist and Wind—Descent—A Roll on the Calotte—Snow Storm on the Grand Plateau—The Grands Mulets again—A serious Disappointment—Magnificence of the Glacier scenery of Mont Blanc—Great steepness of Mont Blanc—A strange Illusion—Uncertainty of Weather and of the state of the Snow—Fatigue—Mountain sickness—Unreasonable expense—The Chamouni regulations. 307

CHAPTER XVI.

GLACIER ACTION AND GLACIER THEORIES.

Striking nature of Glacier Phenomena—Activity of Glaciers—Moraines and Glacier Tables—Different Regions of a Glacier—Motion of Glaciers—Hugi—Agassiz—Forbes—Crevasses—The "Gravitation Theory" of De Saussure—The "Dilatation Theory" of Charpentier and Agassiz—Suggestion of Mr. Moseley—"Viscous Theory" of Professor Forbes—Mr. Christie's Experiment—Forbes's Experiments—Theory of Dr. Tyndall and Mr. Huxley—The Veined Structure—Professor Forbes's Explanation—Dr. Tyndall's—Regelation—The Difference between the Regelation Theory and the Viscous Theories not so great as has been supposed—Geological History of Glaciers—Erratic Blocks—Traces of Glacier Action in Wales—Former vast extension of Glaciers 353

Appendix I.	387
" II.	398
" III.	416

WANDERINGS

AMONG

THE HIGH ALPS.

CHAPTER I.

THE COL DU GÉANT.

There, many a precipice
Frost and the sun, in scorn of mortal power,
Have piled :—dome, pyramid and pinnacle,
A city of death, distinct with many a tower,
And wall impregnable of beaming ice.

SHELLEY.

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Regulations of the Chamouni Guides—Col de Vosa—Col de Balme—Reconnoitring Excursion to the Jardin—Preparations—Night at the Montanvert—Beautiful Moonlight Scene—Start for the Col du Géant—Sunrise upon the Mer de Glace—"Pierre l'Echelle"—"The Difficulties"—"The Dangers"—Fall into a Crevasse—Arrival at the Col—Difficult Descent—Guides—Expense.

I LEFT London on the 15th of August, 1853, and arrived on the afternoon of the 19th at Sallanches, where my good friend Auguste Balmat met me, and greeted me with a hearty shake of the hand as I descended from the diligence. The guides of Chamouni are a kind of corporation, governed by their own bye-laws, which are capable of being enforced by legal process; and one of their absurd regulations\* is, that any person at Chamouni who wants

\* There seems to be little hope of a change, though these rules are doing very much to injure Chamouni, and have already diverted the harder class of tourists to other districts.

a guide, must take the one who is next on the rota. It is in vain that you expostulate—you have an old friend on the list—you do not like the look of the guide thus fortuitously presented—another man has been recommended to you—this has nothing to do with the matter; superior skill, energy and competency bring no advantage to the good guide; impertinence and incapacity are no disqualifications to the bad guide. You must take the man whose turn it is; and you must take him at the regulation price, whether you like him or not. It is all *en règle*. There is but one loop-hole; and only old travellers are acquainted with that. If you engage your guide out of the jurisdiction of the commune, and if you reach Chamouni with him, *by way of a Col*, the regulations are suspended, and you can keep him, though out of turn. If you arrive by the carriage road, he cannot accompany you the next day. Accordingly, I had written to Balmat to meet me at Sallenches, that we might enter the Chamouni jurisdiction by way of the Col de Vosa. We had a beautiful walk up this charming little pass, which is not taken half as often as it deserves to be. Most persons content themselves with ascending to the Pavilion from Chamouni, and returning the same way; whereas, the other side of the pass, between St. Gervais and the summit, is much the more beautiful. The first part of the path leads through verdant meadows and fruitful orchards, after which it turns to the left, and winds steeply round the shoulder of the mountain, amongst luxuriant nut, beech, and chesnut trees, which overhang the track. The roaring torrent of the glacier of Bionnassay is soon left far below. On the opposite side is the beautiful path to Contamines; and, if you turn round, the eye lights upon the lovely and

peaceful scene presented by the rich pasturages of Mont Joly. Emerging from the trees, you come to soft and marshy slopes above the woods, traversed by a thousand rills of transparent, gushing water, while in front are the imposing masses of the great glacier of Bionnassay, surmounted by the still vaster snows of the Dome du Gouté, and of the Aiguille of the same name, with its shaggy precipices and enormous crags. Towards sunset, we reached the soft turf at the top of the Col, and had a glorious view of the valley of Chamouni, and the glaciers and aiguilles of Mont Blanc, and watched the roseate tints on the snowy summits gradually fade into the cold gray of night. We put up at the little hostelry of the Pavilion, where we slept comfortably, and the next day, rising before the sun, descended over the pleasant turf and flowery pastures, all wet with the heavy dews of the morning, and reached Chamouni before most of the world were astir.

After breakfast, I ascended the Col de Balme, to keep an appointment with my brother, who was to come from Martigny to meet me at the top. It was a strangely different scene from the last view I had had over the valley of Chamouni, the year before, when the floods were out; but the traces of the inundation were still apparent to those who knew where to look for them, and in what to recognize them. The once well-metalled road which led to Argentière was a mere dusty track, worn by constant traffic, amongst the stones of all shapes and sizes which had been scattered broad-cast over the plain. The dust was now over our shoe-tops, where, the last year, the water would have reached to our middles. Not a breath of air was stirring, and the heat was intense. We found some huge leaves which we dipped in the glacier stream, and



lining our caps with them let them hang down over our ears and the backs of our heads, so as to form some protection against the fierce glare of the sun. Soon afterwards, we crossed the gigantic moraine which shows where once the Mer de Glace descended right across the plain; a fact which tradition confirms, by saying that formerly a great lake existed behind it, like the Mattmarksee, in the valley of Saas. Among the firs and larches with which this ancient landmark is clothed, you see well the great blocks of primitive granite, of which the moraine is mainly composed. Then the valley opens, and beautiful green slopes on the right make the spot very dangerous in winter and spring, on account of the avalanches. Presently, we came within the influence of the glaciers of Argentière and Le Tour, and a cool breeze tempered the intense and almost overpowering heat. I recognized the spot where, the year before, we had helped the peasants in their efforts to save a portion of their land from the ravages of the flood. How different was now the scene! It was hard to believe that we gazed on the stream which we had seen, but a year ago, exerting such a terrible and destructive agency.

We reached the top about two o'clock, and, in half an hour were gladdened by the sight of my brother and his party, who had kept their tryst faithfully. They had, however, started too late from Martigny, and had paid dearly for the delay. The heat on the Forclaz had been something awful, and every one of the party was more or less exhausted by it. On the way down, just before we reached the ancient moraine of the Mer de Glace, Balmat pointed out to us a spot where an avalanche had descended, the wind of which had carried a man from a place high above the stream at the

bottom of the ravine, to a point nearly the same height on the opposite side. It was many weeks before the snow melted sufficiently to permit the recovery of his mangled remains. He also showed us a gigantic block of granite, which had been transported from one side of the stream to the other by the blow of an avalanche. These specific instances give a better idea than any general description, of the enormous force with which the snow rushes down.

The next day, we visited the Jardin, partly with a view to explore with the telescope the passage leading to the Col du Géant, which we were intending to cross. It was a glorious day, and we made a most successful expedition. While we lay basking in the sun, on the rocks of the Jardin, Balmat took the telescope, and after examining long and anxiously the formidable chaos of crevasses that lay before us on the ascent of the "grand Col," pronounced it to be "passablement mauvais à présent;" but he added, with a quiet smile of confidence, that we should no doubt find some sort of passage. We had started before six; and it was half-past nine at night before we reached Chamouni again; so we thought it well to make the next a quiet day, in order to prepare for the great expedition. My brother went early to the Mer de Glace with the rest of his party; and I stayed below, till the afternoon, to complete our preparations, and joined him in the evening at the Montanvert. One of the *réglemens* of the corporation of guides is, that no party of travellers shall be permitted to cross the Col du Géant with less than two guides a-piece, under pain of a heavy fine on any guide who shall contravene the regulation. We had plotted with Balmat, who had a perfect horror of these absurd and mischievous rules, to make the passage with but two guides, and

had concocted a scheme by which we thought we should be able to evade the law; but it is very difficult in a place like Chamouni to keep these matters "dark." Many things are necessary for the expedition, which cannot be got together without exciting attention; and the chief guide, getting scent of our plan, sent for Balmat, and expressed his determination to have the rule carried out. We were obliged to yield, which we did with a bad grace, and to incur the great expense of four guides. An old friend of mine, Zachary Cachat, had met me at Sallenches, in order that we might be able to secure his services, if we desired them, without the interference of the troublesome *réglements*; and Balmat managed, despite them, to secure us two other excellent guides, by being on the watch, and claiming them the moment their turn arrived. One of them, Pierre Cachat, the uncle of Zachary, was entrusted with the preparation of a strong ladder, to help us over the crevasses. Zachary provided a stout ice-hatchet, fitted on to a short alpenstock, and Balmat saw to the requisite stock of cords, and of such little comforts as chocolate, raisins, a flask of cognac and the like, which we were not likely to get so good at the Montanvert. Chocolate and raisins, it should be remarked, are admirable preventives of thirst and exhaustion; in a very long day's march, it is a great comfort to have them to suck from time to time. All Alpine mountaineers are familiar with this use of them. I had lost my cap in the dark, as we descended the night before from the Montanvert, and invested in a broad-brimmed straw hat, which is a great protection to the face and neck. When we started in the afternoon, with our ladder, ropes, and hatchet, there was quite a stir at Chamouni; and we encountered so

many questioners on the way to the Montanvert, that it was nearly three hours before we reached it. We met my brother's party returning from the Mer de Glace, and parted from them, hoping to meet them again in a few days at Visp or at Zermatt. Our men were all in the highest spirits, and as wild as so many school-boys. An excursion of this kind is profitable to them; and, independently of the gain, I believe they enjoy it as much as their employers.

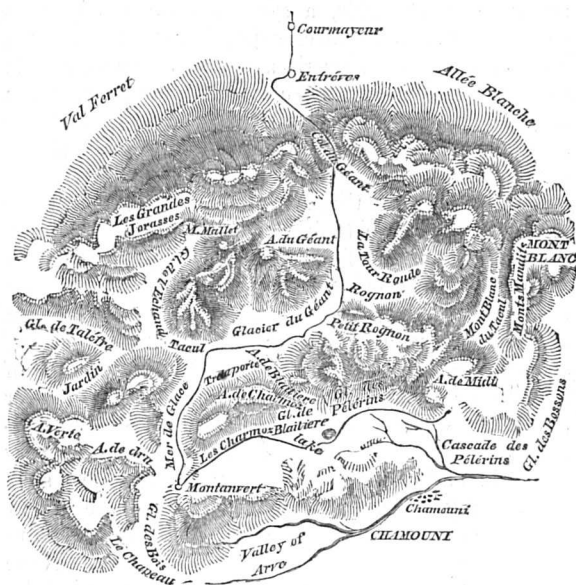
We went to bed early, in the hope of a good night's rest before the morrow. My brother slept well; but, for some reason or other, I never got to sleep at all. I heard every sound, all the night long, out of the house and in the house, from the rattling of the angry wind which blew almost a gale against my casement, to the jabbering and chattering of the women who were cooking our fowls for the morrow, and the champing of a mule's chain, and the clanking of his shoes in the stable underneath. All the night long, the noise never ceased—heavy feet tramping to and fro, here, and there, and everywhere, on the bare wooden floors; shrill voices pitched high, and nearly always at it; guides lying on the hay in the stable, laughing and joking for hours after we went to bed, and every kind of disturbance. The moon poured in a flood of silver light at my window. I thought it was the light that kept me awake, and rose and fastened the shutters outside, excluding all but a stray beam or two, which found a way through the chinks; but in vain. I dozed once or twice, but never fairly slept. However, I lay very quiet; and when, at one o'clock, Balmat summoned me to get up, I was not so little rested as I feared I should be.

It was as beautiful a night as ever gave place to a glorious day. The moon, three days past the

full, was shining with cloudless lustre upon the peaks of the Charmoz, the glaciers and crags of the Nant Blanc, the Aiguille du Dru, and the Aiguille Verte, upon the solemn masses of the Jorasses, and upon the wavy sea of ice beneath our feet, upon whose surface the long lines of moraine were distinctly seen, one behind another. The wind was very high; at times, indeed, it blew quite a gale; and when we started, we were obliged to tie our handkerchiefs over our hats to keep them on. The stars shone with uncommon brilliancy, and seemed (if I may borrow a phrase, I think, of de Saussure's) to hang out of a sky of ebony. The night was remarkably warm. In spite of the high wind which was sweeping down the glacier, the thermometer, at two o'clock, stood at  $58^{\circ}$ , by two observations; a temperature which Balmat said was without a precedent in his experience.

It was exactly half past two when, after a hearty breakfast, we got fairly under weigh. Zachary Cachat led off, followed by Balmat, my brother and myself, and the other two guides. Pierre Cachat went last, carrying our ladder, which must have weighed nearly half a hundred weight, as well as a knapsack containing some of the ropes and provisions. They were all in wild spirits, delighted at the prospect of a glorious day, and a difficult expedition; and made the surrounding rocks ring again with their shouts and laughter. As we filed down the narrow track that leads to the glacier, the rocks about us poured forth one continuous stream of heat. We might have passed the night in the open air, lying near the rocks, and been too hot, rather than too cold. In many places, the puffs of wind, instead of being, as we should have expected, ice-cold from the glacier, burst upon us with the heat and oppres-

siveness of a sirocco. Had this lasted any considerable time, we should have been exhausted before our day's work was fairly begun; but, instead of pursuing the track which the guides are fond of taking, continuing by the rocks and along the moraine beneath the Glacier of Charmoz, which overhangs the Mer de Glace on the right—a track which, though easier, is never safe—we took to the ice before we reached



the Angle. Even here, the hot wind pursued us, and often saluted us with stifling and sudden gusts. The ice gave us a good deal of trouble, from its extreme slipperiness, the consequence of the heat,

which melted off all the superficial snow and softer ice, and left us only the compacter and harder ice to walk upon. The guides, one and all, declared they had never had so slippery a walk over the Mer de Glace, and gave utterance to many expressions of unfeigned astonishment, both as to the heat, and the difficulty of keeping on our feet. Beyond the Angle, we kept as near to the overhanging glacier on our right as we dared; but just as we were approaching the side, a great shower of boulders and smaller stones came crashing down, some of which leaped and bounded nearly as far as where we stood; as if to warn us that, even at that early hour, it was not safe to venture near the edge, or to trust to the comparative break in the energy of glacier action during the night.

Having passed the spots threatened by these lateral glaciers, we took to the rocks again, at the promontory of the Trélaporte, which projects some distance into the Mer de Glace, by crossing the neck of which we gained a good half hour. Here, about four o'clock, we perceived the first faint gray hues of early dawn, showing themselves in the direction of the Col de Balme, where the mountains were lower than they were in the direction of the actual day-break. The changes in the sky, however, were very gradual; and very gently did "the morning steal upon the night;" it was long before the snowy summits to the right of the Col du Géant began to wear the cold, dead white livery of morning. None of us, I think, will ever forget the scene we beheld, as we were making our difficult way across the slippery ridges of densely compacted ice, which lie between the rocks of Trélaporte and those of the Tacul—the gradually paling moon—the stars disappearing one by one, till Jupiter and Sirius alone

were visible—the dark azure (if one might not say the black) of the sky, waking slowly into the coldest and most delicate blue, tinted, in the quarter of the rising sun, with faint blushes of purple, orange, and violet. At length, just at five o'clock, and when we had reached nearly to the foot of the Tacul, and must turn to the right, to face the difficulties of the day, we saw the first bright rays of the rising sun on the summit of Mont Blanc, and the Aiguilles du Midi and du Géant; the shadows from the Grandes Jorasses being thrown upwards, upon the higher aiguilles and summits, down whose precipices and snows they rapidly descended, till they hung long upon the parts which seemed not far above us. At this time, though we were surrounded by ice on every side, the thermometer stood at 51°.

Zachary Cachat's uncle was still carrying the ladder, to which he clung with all the desperate pertinacity of an early attachment; no persuasion would induce him to part with it. We joked him a good deal about his partiality; and one of us said:—"If his name was only Peter, we would call him 'Pierre l'Echelle.'"<sup>\*</sup> This produced a shout of laughter from the guides, as his name turned out to be actually Peter—and to this day he goes by the name of Pierre l'Echelle. It was not till late in the day that we discovered the secret of Pierre's fondness for the ladder. The guides had come to the conclusion, the night before, that the least troublesome way of carrying a part, at least, of the provisions, would be to find inside accommodation for them, and had accordingly laid in a huge supper of chops and potatoes. Pierre being wholly unaccustomed to a great supper, it sat heavy upon his soul; and he

<sup>\*</sup> The name of a well-known rock on the ascent of Mont Blanc.



thought that it would be pleasanter for him to carry the ladder, because he could then, with a good conscience, go last, and take his own pace. No one could have found out that he was unwell, for a more good-humoured, cheerful, willing fellow the sun never shone upon; and he performed the ladder part of the business to admiration. The fourth man, Matthieu Simond, was also an excellent fellow, and it was hard to say which of them was the best for temper and attention. They all paid great deference to Balmat in any matter of difficulty. Simond told me he was a "véritable diable" on the ice; indeed, his scientific knowledge of the glaciers gave him a marked superiority over any other guide I ever saw.

We now turned towards the difficulties of the pass, and drew gradually near to a scene which it is impossible adequately to describe. The walls which bound the glacier are enormous crags and aiguilles, with small secondary glaciers hanging down from their every slope; and as you advance, they retire, and form a vast amphitheatre of snowy peaks and gigantic precipices. Some of the heights are rounded, but most are rugged to the very tops, with snow resting upon every ledge in their precipitous sides; and they present every wild and fantastic variety of shape and structure. As you approach the difficult part of the glacier, you see that it pours in a vast stream of ice over a ridge in its rocky bed; and that it is at the same time much contracted, and forced through a narrow channel, with a bend from the left in its course. Those who know anything of the nature and structure of glaciers need not to be told that, under these conditions, the ice is rifted, and torn and twisted into the most fearful, and apparently impassable chaos of crevasses, blocks, and precipices

of ice. Yet amidst all this seeming confusion, order reigns, and a careful survey which is not distracted from broad characteristics by a minute attention to local and casual peculiarities, will show that there is a point, where the glacier stream is borne against the rocky wall on the right, that confines it at its turn,\* from which the great crevasses all radiate with more or less regularity. The only possibility of effecting a passage, is to note carefully this general law in the direction of the crevasses, and to follow them up towards this central point. However much you may be diverted, from time to time, by the necessity of seeking here and there for a passage, by which to cross this chasm or to turn that crevasse, you must always bear in mind that, only near the point from which the crevasses radiate can you hope to succeed in passing them all. Where the natural features of the glacier channel cause this radiation, the crevasses, as a general rule, widen in one direction, and by following them steadily up from their wider to their narrower ends, you will generally come to a place where they can be crossed either by a bridge of snow or ice already existing, or by the ladder. It must not be supposed, however, that one side of a crevasse is always on a level with the other. Sometimes it is five, sometimes ten, sometimes twenty feet, higher or lower. Sometimes a great mass of ice will rise towering above the rest, surrounded by a moat of crevasses, running in every direction round its base. Sometimes a thin slice will be left far above the rest, curiously overhanging, and all but ready to fall; waiting, in fact, only for the melting of its fast-narrowing base. All such obstacles may have, in their turn, to be scaled, crossed, or turned; and thus arises every variety of

\* Near the Petit Rognon.

difficulty. The only way in which a wide crevasse can be crossed, may be by descending many feet into its bosom, to where a bridge of snow or fallen mass of ice affords a resting place, from which the ladder may be planted against the opposite side; or steps may have to be cut in the ice, or ropes to be used, for fear any one should slip. The mass which we were approaching poured down a steep declivity, so that our course was always upwards; and owing to this fall in the bed of the glacier, the crevasses were not generally vertical, but were commonly inclined outwards from the bottom. "Crevasse" sounds like a small matter; but some are two or three hundred feet deep, few under forty or fifty, and in width they vary from half an inch to three or four hundred feet. Scores of them are from ten to twenty feet across; many, half filled with ice-cold, dark blue water, as clear as crystal. In all, where you can see far enough down into their depths, the walls consist of ice, of the purest, and intensest blue, crossed by small bands of dark green, granulated, and less transparent ice, and surmounted by beds of snow, deposited at different times,\* and not yet compacted,

\* Each bed has generally been supposed to belong to the snow-fall of one year: but this supposed fact has been called in question in a very valuable paper lately published in the London, Edinburgh, and Dublin Philosophical Magazine, by Mr. J. Ball, (Vol. xiv., p. 483, Jan. 1858). Mr. Ball observes, that the dark lines of dirt which separate the different bands, and which have been taken to divide the snow-fall of one winter from that of another, may denote the increased effect of the wind in scattering dust, &c., over the surface of the glacier during any long intervals of fine weather. Mr. Ball shows that the quantity of snow and ice in one stratum is not enough to correspond to the fall of one year. I may mention, in confirmation of Mr. Ball's view, that while I was at Chamouni, in the autumn of 1857, a most violent hurricane blew one night over the upper part of Mont Blanc, and that the next morning the Glacier des Bossons was covered with

by pressure, and by the freezing of the percolated water from the surface, into solid ice. In one crevasse, I counted eleven beds of snow, thus resting one upon the other, the highest bed being hardly different from ordinary snow, the lowest fading into actual ice, and the intermediate beds representing every stage in the transition from one form of frozen water to the other.

Every fantastic shape that the mind can conceive is presented by the great blocks of ice, which come tumbling over in the glacier torrent, and which are pressed forward with a motion, less rapid indeed, but as certain as that of the foaming torrent of the Arve, miles away, towards which they are borne in their silent and ceaseless flow, and as part of whose waters they will ultimately feed the great ocean, hundreds of leagues distant, with a certainty as absolute, and in obedience to a law as definite and unerring, as that under which the sun rises at his appointed time, or the most obvious and familiar phenomenon of nature takes place. From side to side, the masses of ice stretch for a distance of a couple of miles; they are bounded by enormous walls of rock, ice and snow, turreted with equally wonderful peaks, cliffs and pinnacles, and beyond them lie unmeasured fields and mountains of ice, covered by a mantle of deep snow, concealing all but the most gigantic crevasses, and affording a dangerous means of traversing the glacier.

dust and débris, to such an extent as to tinge the whole surface with a strong reddish-brown tint. It struck me at the time, that such a deposit must leave a trace in the stratified structure which the superficial layers of the glacier present. I think it would have done so, even had it been cast upon fresh snow, and had new snow fallen immediately afterwards. It did not occur to me to draw the inference which Mr. Ball has drawn from the observations of himself and others; but the fact certainly bears upon the opinion he has expressed.

Just as we turned to face this difficult passage, we heard the shrill whistle of a marmot, on the side of the Tacul. All eyes were strained to catch a sight of him, for any living thing seemed strangely out of place in that bare and desolate region. I pulled out my glass and saw him scampering up the mountain, till he gained a hole, where he hid his cowering head. We gazed long and intently on the slopes of herbage beneath the Aiguille Noire, as the place is a well known chamois ground; but we could not see any living thing. Near here, we saw several of the beautiful "flowers of the glacier," as the spots are called, where a hole in the surface induces all the meltings of the neighbouring ice to drain towards it, thus making a series of little radiating channels, which are not unlike the petals of a flower.

The ice gradually became more rough and uneven, and the inequalities were on a larger scale; the détours to avoid formidable crevasses were becoming more frequent; beds of snow here and there filled up considerable chasms, when, about a quarter to seven, Balmat thought it prudent that we should get in harness; the ropes were accordingly brought out, and we tied ourselves together, and resumed our march in one regular line. In about half an hour more, the ladder was coming frequently into play, and we had just met the descending shadow line, and crossed it, so that the sun shone bright upon us, (a welcome visitor, as it was very cold while we were advancing towards the huge accumulation of ice, and were far away from the rocks on either side) when we thought it well to stay and breakfast. It was a wild spot; we rested on a bank of ice, surrounded by enormous crevasses filled with water as clear, and almost as blue, as the sky above our heads, and spanned here and there by a frail arch of snow,

which was rapidly disappearing beneath the warm sunshine. There was just room for our party to sit or stand about, without getting too near the edge of a crevasse. Knapsacks, ropes, alpenstocks, the ice-hatchet and the ladder, lay about wherever they would rest, while cold chicken, mutton, cheese, bread and wine, were unpacked in tempting array before our eager eyes. Below us, lay the fields of ice across which we had already made our way, and above, sparkling in the radiance of the morning sun, and dripping at every point, were the tremendous cliffs and chaotic masses of torn and jagged ice, through whose network of gulfs and precipices, of overhanging blocks and fathomless fissures, we had yet to make our way. About half a mile off, the ascent seemed crowned by an unattainable wall of ice, broken and rifted itself, but everywhere precipitous and forbidding, and guarded by the longest, widest, and deepest set of crevasses in the whole glacier. It was, in fact, assailable only on the extreme right, where the approach was so formidable, the direction of the crevasses so irregular, the bridges so few, so narrow, so inclined and so difficult of access, that it seemed all but hopeless to think of attacking such a fortress in that quarter; however, we were in good hands, and had no doubt of success, and we made our halting place a cheerful spot in the midst of the desert of ice.

By eight o'clock, we were again in motion; the difficulties being, as Balmat said, about to begin—and being "*passablement mauvaises*." Our method of progression was, perhaps, more safe than dignified, and afforded a good deal of amusement. Zachary Cachat preceded my brother, holding in his hand a cord, to the end of which my brother was tied—very much as a dancing bear is led. Then came

Simond, leading me in the same fashion. As for Balmat, he had the "direction" of the expedition, and it was necessary for him to go forward, by himself, to explore the way. If there was any impossible-looking pinnacle of ice, which commanded a better view than another of the surrounding labyrinth of crevasses, Balmat was sure to be seen peering about from the top, which he had gained in some incomprehensible way, examining anxiously, but coolly, for the passage. It was one of his exploits in this way that called forth Simond's admiring exclamation, that he was a "véritable diable pour la glace." It was a scene of great animation and excitement, and the eager shouts of the men in their Sardinian patois, as they rapidly asked or answered questions about the route, or gave and acknowledged the necessary directions, harmonized well with the wildness of the prospect. "Aouste, Aouste, passe-t-on là-haut?" would be asked by one, and answered by a rapid "non, non, là-bas;" and then a wave of the hand, and "Zachary! lash (I am spelling phonetically), lash passar monche," (let Monsieur pass on). "Où passar?" "A droit, à droit—voilà," and then a loud "Pierra, Pierra, devança la fila," (Pierre, Pierre, forward with the ladder), as Pierre l'Echelle, who still brought up the rear, was ordered to the front, to help us across some formidable crevasse. Some idea of the intricacy of the passage may be formed from the fact, that in the course of three hours, we made less than half a mile of direct progress; but such was the beauty of the scene and the excitement of the enterprise, that it seemed scarcely half an hour, and we were quite sorry when we reached a sort of valley in the ice, where the last party who had made the passage had left their ladder, and where we also were to leave ours.

It was now eleven, and we sat down again, and made a short but grateful repast. It was an awful sight to look back on the maze of crevasses we had left behind; and we could not help wondering at the skill which had brought us through them all in perfect safety. After our lunch, bidding at length farewell to Pierre l'Echelle's "premier amour," as we named it, we got into harness once more, and were all tied together in one long row; for now, according to Balmat's distinction, the difficulties were over, and the dangers about to begin. The dangers in question were those of concealed crevasses, for, from this point, the ice was all covered with a thick coating of snow. For two hours we made our way across the vast fields and mountains of snow, often obliged to zig-zag on account of the steepness of the ascent, and to make long détours, to avoid crevasses which the leading guide discovered by striking his stick into the snow, as he went along. Fortunately, the snow was in a good state, and as the sun does not beat fairly down upon these slopes till the afternoon, they were tolerably firm, and though we found our gaiters comfortable, we were seldom six inches, and often not more than two, deep in snow. Early in the ascent, I had a practical proof of the advisability of being tied, for I fell into a hole over which those before me had passed in safety. It was only up to my thighs, and I thought the guides ran a risk of breaking my legs by their energy in pulling me out. Nearer the top, we encountered a broad and deep crevasse stretching across the glacier for a mile or more in each direction. It would have been a serious addition to our labour to have had to turn it, and fortunately in one place, not far from us, it was spanned by a frail bridge of snow. Balmat



passed safely over it, but it was very rotten, and each succeeding person made it worse. I was fifth in the line of march, and the instant that I stepped upon it, it gave way, and I fell into the crevasse. The moment I felt myself going, I shouted to the men before me; every one planted himself firmly in the snow, and as we always kept about ten feet from one another, I did not go far. I felt the cord tighten round my body, and knew that I was safe. I was up to my neck in the crevasse, and felt my legs dangling in the blue depth below. I had just time, while in this position, to cast one look into the yawning chasm beneath me, and I shall never forget the sight. The crevasse appeared to stretch away to an interminable length on either hand, varying in width from four to five feet to twenty or thirty, or more. It appeared to be three or four hundred feet in depth, and was, throughout, of the deepest and most transparent blue. In places, the crest of snow at the surface projected, like broad eaves, over the edge of the crevasse, and great icicles hanging from the under side presented a strange scene of fantastic magnificence. I was not left long to contemplate the wonders of a crevasse, for I was instantly hauled out like a bale of goods, and deposited safely on the opposite bank, none the worse for my fall. Pierre l'Echelle, who was following me, had to take a leap with his alpenstock, and was helped across by a pull at his rope from the others.

Soon afterwards, we were assured by that indescribable appearance and feeling in the air which tell you surely when you are cresting a swelling ridge, that the top of the Col was at hand, and in two or three minutes the whole chain of the Piedmontese Alps, from Mount Combin on the left, to

Mount Cenis in the extreme right, far away in the distance, began to appear above the horizon. The effect was magical, as they rose slowly into view. First came snowy tops; then glacier stretches and slopes; then crag and precipice; then the nearer green of the Cramont, the Chétif, and the Col de Ferret; and, at length, the end of the Allée Blanche and the glaciers of Miage and Brenva, and the head of the rich valley of Aosta, at our very feet, lay before us in one exquisite picture. It seemed as if one could throw a stone from where we stood on to the church of Courmayeur. The sky was not cloudless on this side, as it had been on the other, but there was nothing to take away materially from the extent or clearness of the view. To our right, rose Mont Blanc himself, to all appearance not very far above us, and the formidable crags and precipices which guard his southern frontier. The difference between the configuration of the northern and that of the southern side of the range is very curious. Seen from Chamouni, Mont Blanc appears all white; from the Col du Géant, the southern side appears all black; and I know hardly anything among the Alps finer than the stupendous buttresses of dark crag which rise from the valley below almost to the very summit of the mountain monarch. Behind us lay the snowy basin and the noble peaks among which we had been for so many hours, and to our left rose high above the pass its guardian tower, the great Aiguille du Géant. In front, the descent was so steep that, though we could see the green slopes below, we could *not* see how to reach them. It looked as if a pebble might have been dropped down thousands of feet.

Some rocks jutted out of the snow on the right of the Col, and here we came to our third halt, at half-

past one—having occupied eleven hours in the ascent from the Montanvert. We could recognize, from his description, the spot where the intrepid De Saussure had built his little cabin, when, for the purposes of science, he spent seventeen days on this barren Col, though no traces of the structure remain. A few fragments of straw, preserved by the frost, were the sole material relics of his adventurous sojourn. We had no difficulty in fixing upon the rock he mentions as lying about half-way between his cabin and the station where his instruments were placed, and against which, in storms of wind, he and his companions were glad to save themselves from being blown over the precipices on the south side. From this point, the view was yet more extensive than that which we first saw; for the many peaks of Monte Rosa were now in sight, as well as the sharp and lofty pinnacle of the Matterhorn. We found many crystals on the Col; amongst them, some of considerable size and beauty. The rock is a protogenic granite, intersected with veins of quartz. These elevated summits are exposed to great extremes of heat and cold, and as the quartz and the granite expand and contract unequally, the rock is very much disintegrated, so that it is comparatively easy to get at the threads of quartz in which the crystals lie.

The air was pleasantly warm, and there was little wind, so that we found our resting-place a very agreeable one, and we remained here for an hour, enjoying the sublime prospect before us, and refreshing the inner man with more substantial food. We had earned our dinner, and extensive as I had been inclined to consider Balmat's preparations, they proved not at all more than adequate to the occasion. From our first refectioin, I had been wholly unable

to discover the influence of the last night's supper on the appetite of the guides, and certainly, if it had ever had any existence, it had vanished long before this time. Even Pierre's indigestion produced no appreciable result. The most substantial viands disappeared with a marvellous rapidity, and the knapsacks were as light again when we resumed our march. We had brought up a bottle of effervescing lemonade, but it was not easy to drink it, as at this great height the gas flew out with wonderful energy, the moment the cork was drawn, and scattered a considerable part of the contents of the bottle before it could be brought to the lips.

While reclining on the rocks after dinner, basking in the sunshine, I pulled off my hat, the better to enjoy the gentle breeze, and laid it down beside me. I was surprised to receive a very emphatic warning from Balmat to put it on again. He told me that at these great heights the sun has an effect far beyond its power in a denser atmosphere, and that to remain uncovered in the sunshine, even for a few minutes, is full of danger. I could scarcely believe it at first, but he told me it was a well-known fact to mountaineers, and that he had known several instances in which a very serious sun-stroke had been the consequence of neglecting the precaution of keeping the hat on, in very elevated spots, and while exposed to the mid-day sun.

At half-past two, we left the summit of the Col, and casting one last look at the splendid amphitheatre behind us, began to descend an extremely steep arête, composed entirely, on the surface, of loose rolling stones, which afforded the worst possible footing. Anything so steep and bad I had never yet descended. For some distance, it was down the very edge of the arête, with a precipice on the right,

overhanging a glacier covered with loose dry snow, in which every stone that we sent over created an avalanche. We adopted something like the bear fashion again. Each was preceded by a guide, and held up by another, who followed, holding a rope by which one of us was tied. After some time, we got on to a slope of snow to the left, which was extremely steep, and to all appearance ended in a precipice. Balmat and my brother took a glissade from top to bottom, and arrived in a very few minutes at the foot of the snow-slope,\* some fifteen hundred feet below. Pierre l'Echelle and Simond, to whose charge I was more particularly entrusted, preferred a painful and laborious descent over loose rocks, rolling stones, and moraine, where it is no idle exaggeration to say that a single bad slip would probably have cost both myself and my guides our lives. It is impossible to hurry down such a place as this, and the descent to where the others were waiting for us occupied nearly an hour.

By a quarter past four, we were all together on a little green knoll, at the end of the worse part of the descent. We were none of us sorry to indulge in a quarter of an hour's rest; and the view of vegetation was an agreeable change, after so many hours of sterility and desolation. The only flowers I had seen since we left the Montanvert, were a *ranunculus glacialis* and a *dryas octopetala*, which I gathered on the steep moraine, not far from the summit of the Col. At five o'clock, we reached a

\* In the former edition I have called this a glacier, as I believed it to be. In crossing the Col du Géant, last autumn, I was surprised to find that what I had supposed to be a glacier was nothing but a large field of snow. The very hot summer of 1857 had melted away almost the whole accumulation, and between Courmayeur and the summit we encountered only one small patch.

spring, the first we had met with to-day, at which we sat down and finished our wine. Vegetation was still scanty; but beautiful patches of *myosotis alpestris* produced a bright and cheerful effect, and the delicate ladies' mantle (*alchemilla vulgaris*) grew freely near the water. For some time longer, the descent was very fatiguing and uncomfortable. The mountain was extremely steep, and very bare and rugged, with here and there great slabs of smooth rock, taking the place of the thin coating of mould and loose stones to which we owed the possibility of descending at all; and some care was necessary to avoid these slippery slabs, down which we must have slid with a fatal velocity had we once got upon them.

After a long scramble, the green slopes I had noticed from above were reached; but they proved to be themselves very steep and tiring. However, we raced down them as hard as we could go, and arrived about seven o'clock in the valley below. A great change had taken place since we left the summit of the pass. In the attention necessary for the descent, we had not noticed the gathering clouds; but now, not a bit of blue sky was to be seen; heavy thunder-clouds hung over Mont Blanc and the Allée Blanche; and the heat of the valley was almost unbearable. At the sulphur baths, near Courmayeur, we turned aside, and, guides and all, enjoyed the refreshing luxury of a warm bath. Zachary Cachat stood much in need of it, for he was quite tired down, and his eyes were suffering a good deal. Mine were scarcely touched, though we had been obliged to forego the use of veils in the most difficult parts. My forehead, curiously enough, was most burnt. The brim of the white straw hat had reflected back again the glare and heat reflected by the glacier, and

concentrated a portion of them on my forehead, which was very sore and painful for some days afterwards. I was obliged to provide against the recurrence of this effect, by lining the brim half way round with a piece of green calico, which I procured with some difficulty at Martigny.

It was eight o'clock when we reached Courmayeur, after a day of nearly eighteen hours; but the expedition had been so completely successful, and we were so well pleased at the result, that we did not feel any extraordinary fatigue: and the warm bath had removed much of that heat and dryness of the skin which such a day is apt to produce, and relieved the swollen and uncomfortable feeling of the face, which a very long and rapid descent almost always causes. We found that another party was to start, about two in the morning, to cross the Col from Courmayeur to Chamouni. We feared they would have bad weather; but, though there was thunder and lightning amongst the high peaks during the night, the morning was fine, and we heard afterwards that they had a successful expedition, much assisted, as we expected they would be, by our track, and by the ladder we had left in the hollow, and which they made use of in descending through the "difficulties."

The passage of the Col du Géant is one of the finest expeditions I have ever taken: I thought the passage of the Findelen glacier, which I made a week later, and the ascent of the Wetterhorn, which I made the following year, finer; but they are the only expeditions I know, which will bear comparison with the "Grand Col," as the guides of Chamouni are fond of calling it, *par excellence*. For one particular kind of glacier scenery, it is unrivalled: not even in the ascent of Mont Blanc, nor in any other

excursion that I know of, are such ice difficulties to be encountered. The ascent of the Wetterhorn, and the passage of the Findelen have difficulties of their own, even more formidable; but they present no such wonderful collection of crevasses as are to be traversed on the ascent to the Col du Géant. Crevasses may be met with elsewhere, as deep, as long, and as wide; but it would be difficult to find another glacier, which is passable at all, so broken and twisted, and presenting such an amazing labyrinth of crevasses and chasms, as that portion of the Glacier du Géant which lies between the base of the Aiguille Noire and the foot of the Tacul.

It is a scene of which it is difficult by description to give even a faint idea; but it is one which, I think, must remain indelibly fixed in the memory of every one who has beheld it, and which it would not be easy for the most apathetic spectator to gaze upon without astonishment and emotion. There is hardly a sight among the Alps, so calculated to impress the mind with an idea of the prodigious energies of glacier action. If we consider that all this disruption and shattering of the solid body of ice, which streams down from above, is caused by the mere force of pressure, as the descending ice is squeezed into a narrow channel, and over a rocky ridge; that every particle of the compact and continuous ice above is, in its turn, forced into the same cleft, and undergoes the same process, after passing through which, it is again urged over a gentler inclination, and, at the junction with the other tributaries of the Mer de Glace, compacted more solidly and densely than ever, we shall see that glacier agency is amongst the most potent and awful forces of nature. Nor can the imagination help being powerfully impressed, when it contemplates the slow, but steady, certain



and irresistible march of these stupendous accumulations of ice and snow. The part of the glacier where we left our ladder, will arrive opposite the foot of the Tacul in about forty years, after undergoing the tremendous changes to which the configuration of its channel will subject it in the gorge beneath the Aiguille Noire.

Those who undertake the passage of the Col du Géant must feel glad that it occurs in the neighbourhood of Chamouni. The guides of Chamouni are, generally speaking, far superior to those of any other part of Switzerland, especially in all the difficulties of the ice. It has been, for many years, more the habit of tourists to make difficult expeditions from Chamouni, than in any other part of Savoy or Switzerland. Even ladies not unfrequently venture to cross the Mer de Glace and visit the Jardin, and most gentlemen make that excursion. Hence, there are few of the guides but have more or less familiarity with the ice, and although, especially under the regulations which have prevailed for some years past, very incompetent persons are often enrolled among the corps of guides, the proportion of tolerable guides is greater at Chamouni than any where else that I know; and the best among them are beyond comparison with those of other parts. The inhabitants of this region are naturally a bold and hardy race, and they exhibit a courage and enterprize in exploring the recesses of their native mountains, and a readiness and fertility of resource in moments of difficulty or danger, which make them most valuable companions in any considerable mountain expedition. The abominable *réglemens*, to which allusion has been already made, greatly interfere with that freedom of selection which ought to exist. You have to contend with the evils of monopoly, instead

of enjoying the advantages of free trade. But still, by a little patience and management, if you have a day to spare, you may generally secure one or two guides, of tried courage and ability, and sometimes, on the more difficult and dangerous excursions, the chief guide will allow you to select one out of the requisite number. For a passage like that of the "Grand Col," I would rather have two Chamouni guides than a dozen from any other part of Switzerland or Sardinia; though I should be sorry to undertake it without one, at least, of my own choosing. It requires great experience, coolness and courage, to find the way through such a tremendous labyrinth as the difficult part of the passage presents.

The expedition is a costly one—under present rules, three guides for one traveller is the number fixed by the tariff; and it was with great difficulty that we were able to induce the chief guide to allow us to start with only four. The number is not so outrageous as it might at first sight appear. When all goes well, as it did with us, and no accident or untoward circumstance occurs, three would be quite sufficient for two travellers, and we might have managed with two. But it is not always so. Persons unacquainted with the high glacier passes can scarcely reckon confidently on their endurance, and not always on their nerve. It would be no disgrace to a man, who was passing over a high glacier for the first time, to be daunted by the terrors of the Col du Géant, or, without being actually alarmed, to require a great deal of time, and a considerable amount of assistance, in traversing those dizzy bridges and narrow parapets of slippery ice or treacherous snow, which must often be his only way of advancing—trusting, perhaps to a narrow foot-hole cut in the side of a bank of ice inclined at an angle of  $60^{\circ}$  or  $70^{\circ}$ , and offering no

resting place, in case of a slip, till he arrived too speedily at the bottom of a deep crevasse. There are many situations of this kind, in which it is impossible to feel confident of safety, till familiarity has in some degree deadened the sense of danger, and blunted the keenness of imagination.

After a while, one learns by experience that the real dangers are not always the apparent ones, and that the proximity of a curtain of snow of unwelcome steepness, or an exposure to the moraine of an overhanging glacier is a far more formidable risk than the necessity of passing along the ridge of a precipitous arête, or of trusting to a bridge of snow in crossing a crevasse; but it is not, and cannot be, so at first. In case of accident or difficulty, it is a terrible thing to be underhanded on the high glaciers. If only two persons were crossing a glacier like that of the Géant, and one fell into a concealed crevasse, an occurrence against which no precautions can always ensure the traveller, he would be as likely to drag down his companion, as his companion would be to haul him up. Three is the smallest number of persons that ought ever to undertake such a passage, and, by keeping far enough apart, three may always be safe from any serious danger of this kind. There is much to carry on such an expedition. Ropes are absolute necessities, and a ladder nearly so; the labour and fatigue are very great, the air is keen, and the appetite wonderfully stimulated. Provisions calculated at the rate which suffices in the plains would be woefully insufficient; and I defy any man, however romantic, to enjoy himself at the top of a great glacier pass, if he be undergoing the cravings of a ravenous hunger. Generally speaking, the traveller is not inclined to carry much himself, and the guides have to carry his traps and provisions as well

as their own. Hence, two guides for one traveller, and three guides for two travellers, is by no means too liberal an allowance. We were not sorry that we had four. The "tarif" for the "course" is fifty francs a guide; a large sum, but less unreasonable than it might at first sight appear, when it is considered that they have to return by the Col de Ferret and the Tête Noire, a good two days' journey, to Chamouni. If you are returning yourself and keep them to accompany you, the price is no more. Most travellers, if they are pleased with the men's conduct, (as they are almost sure to be) give them a trifling *bonnemain* besides. The fifty francs includes the broken day passed between Chamouni and the Montanvert, and their expenses at that inn; so that, in reality, it represents four days' pay; and the day of the passage itself is a very heavy one. It occupied us, under favourable circumstances, nearly eighteen hours, and our guides were carrying from twenty to thirty pounds weight a-piece, besides the ladder, for a great part of the day. On the passage, you always provide food for your guides. They are content with very simple fare, and generally propose, of their own accord, to take commoner wines and coarser food for themselves. I have always declined this arrangement, and insisted upon our all sharing alike on such occasions. The difference in expense is not worth consideration, and it helps to promote that kindly feeling and good fellowship amongst the party, on which so much of the pleasure of the expedition must depend. Our provisions for the day cost about fifty francs, for which we had three hearty meals, breakfast, lunch and dinner, (or, to speak more properly, breakfast and two dinners) seven bottles of good wine and lemonade, and a flask or two of brandy; so that the expense of the whole

expedition may be reckoned at something between £10 and £12. It might, perhaps, be done a little cheaper; but not much. It is, however, well worth the money.

I have only to add that the pass should, I think, be taken from Chamouni. The guides of Courmayeur are very inferior to those of Chamouni, and the views are, on the whole, finer, as seen in ascending from Chamouni, and descending upon Courmayeur, than in crossing the opposite way. The ascent from Courmayeur is so extremely steep, and the mountains rise so abruptly overhead, that it must require a continual effort to gaze up at them. On the other hand, the approach to Courmayeur from Aosta is one of the grandest rides in Europe; and if the course of your journey leads you down, instead of up, the Val d'Aosta, (as is the case if you cross from Chamouni) this magnificent scene is in a great measure lost, as you can only enjoy it for a few moments at a time, by turning round to look at it, (always a tedious process) instead of having it constantly before you. If I were about to cross from Courmayeur, I should write to some of my old friends at Chamouni to meet me on the south side. The expense would be the same as that of engaging guides at Courmayeur. It is easier to ascend than to descend through the broken part near the Petit Rognon, so that the passage from Chamouni presents less formidable difficulties than that from Courmayeur.

## CHAPTER II.

### A NIGHT ON THE MER DE GLACE, AND A LADY'S VISIT TO THE JARDIN.

I lay on that rock where the storms have their dwelling,  
The birth-place of phantoms, the home of the cloud ;  
Around it for ever deep music is swelling,  
The voice of the mountain wind, solemn and loud.

MRS. HEMANS.

Noctes cœnæque Deûm !

HOR.

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Giving the "Chef-Guide" the Slip—How to carry Cream in the Mountains—Dangers of the Glaciers—Arrival at the Tacul—An Airy Lodging—"Difficulties" of the Col du Géant revisited—Supper on the Moraine—Night among the Glaciers—A Cold Bath—Useful Coffee-pot—Sunrise on the Mer de Glace—Les Egralets—The Jardin—Return to the Montanvert—Descent to Chamouni in the Dark—Remarks—Desirable Arrangement.

I WAS at Chamouni in the autumn of 1854, accompanied by my wife and brother-in-law ; and after the usual round of excursions, after visiting the Flegère, and the Montanvert, essaying the passage of the "Ponts," ascending the Breven, and watching from that glorious point of view a very successful ascent of Mont Blanc, I experienced a growing desire to introduce my wife to some of the wilder and grander features of glacier scenery, and to give her a little insight into what exploring the recesses of the High Alps really involves. I was satisfied

that the great fatigue of reaching and returning from the Jardin in the same day, even if we slept two nights at the Montanvert, would destroy all the pleasure she would otherwise derive from the expedition, even if it did not prove altogether beyond her strength; besides which, a lady unaccustomed to the rough accommodation of such places would be very likely to pass but an indifferent night at the Montanvert: and the thought struck me, whether it would not be practicable, with proper provision and precaution, to camp out on the way. It appeared to me that the foot of the Tacul might very likely afford the means of extemporizing a tolerable shelter for the night. I consulted Balmat, and found that he entertained no doubt as to the feasibility of the undertaking.

There was a great rock, on the side of the moraine of the Mer de Glace, near the Lac de Tacul, under which he had passed many a night while on hunting excursions, or with Professor Forbes, in the course of his long and arduous investigations of the phenomena and causes of glacier motion. There would be little difficulty in rendering this such a shelter as Madame might safely trust to, and he would guarantee that no colds should be caught. Accordingly, after some deliberation, we resolved upon making the experiment. We thought it prudent to keep the matter very quiet, as we did not know what exorbitant conditions the chief guide might deem it his duty to impose in such a case. Balmat knew a man, whose cottage we had passed on the ascent of the Breven, old, but hale and hardy, trusty as steel, and who could keep his counsel, whom he would engage in the enterprize. He was very poor, he added, and seldom tasted meat, but was upright and honest, and had brought up a large family in in-

dustry and respectability, and the little money he would earn would be welcome to him. He was accustomed to sleep out on the mountains, and was known, at times, to employ himself in seeking crystals, so that his appearance on the way towards the Montanvert would excite no suspicion, though he was not a regular guide. There was also a "bon garçon" he knew in the village, who would suit our purpose, but whom he would not speak to till we were about to start. We were going that day to the Chapeau, and thence across the Mer de Glace to the Montanvert, and the landlord of the Montanvert was a friend of his, and he would engage with him to supply all that was wanted, giving him a hint, at the same time, that if the affair got wind, we should stay at Chamouni, as we wished to be private.

In pursuance of this plan, the old man was appointed to meet us at the Montanvert by nine o'clock in the morning, and during our halt at the Montanvert, on the day we visited the Chapeau, the requisite understanding was come to with the innkeeper, and certain preparations were ordered to be quietly made for the following day. We descended to Chamouni, which we reached about seven, and gave directions to be called at five the next morning, as we wished to be abroad early. We found we were wise in having been so quiet about the matter; for when we announced, on the morning of the 28th of August, that we were going to the Montanvert and the Mer de Glace, and should not return to Chamouni that night, the waiters and attendants* beset Balmat with

* M. Eisenkraemer, (or, as the guides call him, M. Ferdinand) the excellent landlord of the Hotel Royal, to whom I am indebted for many acts of courtesy and attention, had been taken into our plans, and had given us, as he always does, every assistance in his power; but he had kept his counsel, and no one else in the house knew the object of our excursion.

questions as to what we were going to do, and why we were going to sleep at the Montanvert, and what made us so fond of the Mer de Glace. "Why, it is the third time that Monsieur and Madame have made that course. Once is enough for most people." Balmat had some difficulty in putting off his inquisitive querists, but he managed to foil them, and we got off without any one having the least idea what we were going to do. The "bon garçon" joined us at a quarter of an hour's distance from the hotel, and took charge of my wife's mule; and as we started at seven o'clock, we were before most of the world of tourists, and at the Montanvert found no one but the old man, waiting for us, and one or two persons who had been sleeping at the inn. We thus escaped two annoyances—that of having a multitude of unnecessary guides thrust upon us by the authorities of Chamouni, and that of having a troop of spectators to watch us. Judging from the noise the expedition made, when it became known, it is not unlikely that we should have had half Chamouni assembled to see us start, and perhaps should have been tracked by some curious spirits to our resting-place for the night.

Our preparations took some time to complete; but we started the old man, loaded with a mattress rolled up, and strapped across his shoulders, and packed a large basket, such as the country people carry on their backs, with sheets and blankets, over which we stowed a three-legged coffee pot, destined to be of signal service, a supply of glasses, knives, forks and spoons, and then a layer of provisions; and with this we despatched the "bon garçon," while we stayed some time longer at the Montanvert, to look after the rest of our outfit: for the one stratum of eatables, carried by the "bon garçon,"

was only a snack, compared with what was wanted. Six hungry people had to be provisioned for a day and a half to be spent in the keen atmosphere of the glaciers. A dish of beautiful wild alpine strawberries, with sugar and rich mountain cream, gave us not unprofitable occupation for part of the time we were obliged to wait. There was one luxury, however, which Balmat was bent upon having, which could not be hurried; he was resolved we should not drink our tea without cream, and accordingly prepared a bottle of cream in a fashion which was new to me, but which perfectly answered the end in view. The cream is boiled, then left to stand till cold, then poured into a bottle tightly corked. In this way, it may be carried for hours in a hot sun, and be none the worse for the journey. On arriving at the halting place, the cork must be taken out, and the bottle deposited in a cool and shady spot. There is hardly any difference perceptible, between tea made with cream prepared in this way, and tea made with fresh cream.

The cream took a long time to cool, and it was eleven o'clock before we set off from the Montanvert, and took the narrow and (to me) familiar path which leads to the glacier. It was a glorious day, without a cloud to speck the deep blue of the boundless vault of heaven, and a gentle and refreshing breeze from the glacier tempered the heat of the mid-day sun; my wife proved herself a capital mountaineer, and thought nothing of the passage of the Ponts. As a measure of precaution, Balmat went first and gave her his hand, while I scrambled along, just beneath where she was walking, so as to be able to catch her, in case of a slip; but it was unnecessary, and she could very well have dispensed with any assistance. Close to the Ponts, I gathered from the rock a most

beautiful specimen of the brilliant *Geum montanum*. Even the barren moraine beyond is not destitute of vegetation. In 1857, I gathered upon it a pretty piece of rhododendron, (*ferrugineum*), the brilliant colour of which, as usual, bore witness to the healthful influences of the fresh breezes from the ice. We took to the glacier before reaching the Angle, though the ice is much crevassed, as it is not safe to proceed beneath the glacier of Charmoz, exposed to the discharge of blocks of ice, and of stones from its terminal moraine. Balmat pointed out to us, on the opposite heights, above the glacier of Nant Blanc, the junction of the beds of gneiss and granite, which is exceedingly well defined, the strata of gneiss running upwards, and being crowned by an unstratified mass of granite.

He recounted to us a thrilling incident of which he had been a witness, from near the spot on which we stood. He was at work with Professor Forbes, on the Mer de Glace, opposite the Nant Blanc, when they saw a huge rock, as large as a house, just beginning to move; and, to their dismay, beheld a shepherd watching his flock, right underneath the rock, and in the very track it must take. The man was unconscious of his danger. They shouted, and shouted as loud as ever they could—and the shout of a Savoyard mountaineer may generally be heard a good way off—but in vain; they could not attract his attention. A torrent was roaring by his side, and its noise drowned all other sounds. They thought his destruction certain, and shuddered at the sight, which Balmat said turned him sick; when, just above the peasant, the rock took a leap, and shot over his head, covering him with soil and débris. They saw him get up, shake himself, and look up and down, to see whence the shower of dirt

had come ; but he was not hurt, and probably less alarmed than they had been.

We had a beautiful walk over the ice, especially when we had advanced some distance, and it became more compact and less crevassed. We crossed the shoulder of the Trélaporte, where we stopped to take our mid-day meal. Balmat pointed out to us, a short distance from where we sat, a deep precipice of granite, on a narrow ledge of which, some ten or twelve feet from the top, he had, during one of his excursions with Professor Forbes, discovered an unhappy traveller, who had fallen from the top, and was saved from immediate destruction by lighting upon this fearful spot. His hands were torn and mangled in the fall, and he had passed the whole night, and part of the following day, in all the agony of hopeless suspense, with no prospect before him but that of a dreadful and lingering death. When, with great difficulty, he was rescued, it appeared as if the shock had been too great for reason to withstand ; and for the time, at least, he seemed beside himself. Balmat had heard, though he was not confident of the accuracy of his information, that he never entirely recovered the use of his faculties ; and the supposition was borne out by the fact that Balmat had never since heard from him, or received one word or expression of thanks, directly or indirectly conveyed. This, however, I only learned from questions that I put myself ; and Balmat, with characteristic modesty, never informed us that, to save the unfortunate man, he had placed himself in the most imminent peril, and had, in fact, been all but lost himself.*

After lunch, we descended again to the glacier, on

* The incident is graphically related in Professor Forbes's admirable work, " Travels through the Alps of Savoy," p. 82.

reaching which, instead of bearing to the left, as we should have done if making for the Jardin, we struck across towards the head of the great basin of the Glacier de Léchaud, which, for half an hour, lay in front of us, guarded by a semi-circle of enormous crags, from whose precipitous summits hang down on every side steep and shaggy glaciers, terminated by one long line of enormous crevasses, such as in Switzerland are called bergschrunds, and which always occur at the foot of an arête of this kind, separating the abrupt curtain of ice above, from the flatter portion of the glacier below.

At length, we turned sharply to the right, fronting the passage to the Col du Géant, though the Col itself was hidden from us by the huge moraine of the Mer de Glace. A few minutes more brought us to the foot of the moraine, on climbing which a striking scene burst upon the view. We gazed down a deep valley, full half a mile across, which ran between us and the foot of the Tacul—the side on which we stood being formed by the moraine of the Mer de Glace, many hundreds of feet in height. This moraine was partly composed of the largest rocks and boulders I ever saw on a moraine; and at its foot, in the broadest part of the valley, was the flat sandy bed of a glacier lake, now empty. Across this wild ravine were the green slopes of the Tacul, covered with herbage, and even supporting quantities of dwarf rhododendrons; and in front lay the magnificent approach to the Col du Géant, and the grand amphitheatre of peaks and glaciers which stretches from the borders of the Col to the Aiguille de Blaitière. Behind us, was the scarcely less magnificent amphitheatre enclosing the Jardin and the Glacier du Talèfre, which pours forth from the

opening below, in an impassable cataract of torn and shattered ice.

We descended a short distance over the moraine, and towards the bed of the lake which lay beneath us; and presently arrived at the wild spot which was to be our resting place for the night. One huge rock had fallen upon another, and thus made a rude cave, some ten or twelve feet long, and at the opening three or four feet wide, and as many high, narrowing off and shelving upwards towards the back, till the cave was not more than three feet across, and a couple of feet in height. A glance at the place sufficed to convince us that we should not suffer, at all events, from want of ventilation. Each end was open to the air; and between the rocks that formed the sides and roof of the cavern, were numerous apertures and crannies, through which the night wind would make its way with perfect ease. However, we had come prepared to rough it, and we saw nothing more formidable than we had expected. The valley itself, half way up the side of which our hut was perched, was in a sheltered situation, and exposed to the wind only on the west, that is, on the side of the Col du Géant. The weather was splendid, and we were amply provided with the means of keeping up both external and internal warmth. In 1857, I revisited our camping ground. The day was cold and the sky overcast, and when we reached the spot a driving shower set in from across the Glacier du Géant. The place looked, I must confess, under such circumstances, uncomfortable and cheerless enough. I could scarcely realize, and my companions, amongst whom were two young ladies, might well have been excused from believing how much we had enjoyed our evening there, three years before. A little bird kept hovering about the

great blocks of the moraine, whose brownish plumage was interspersed with large patches of the most brilliant red, upon his breast and belly and beneath his wings—the first living thing I have ever seen in that desolate region.

It was four o'clock when we arrived, and we found the old man, and the "bon garçon" there before us, quite ready for their dinner, poor fellows! as they had modestly waited till we should come up, before they would touch the provisions they had carried. We soon set them to work, and Balmat and I unrolled the mattress, making first a floor of stones, as even as we could, and spread it at the upper end of the cavern, and then, with the sheets and blankets we had brought, made up a very respectable couch. We drove two alpenstocks into the ground, just outside the entrance, and fastening a large plaid in front, converted it into quite a retired and snug apartment. Having arranged these matters, and finding that my wife and her brother were disposed to sketch, Balmat and I resolved upon taking a stroll towards the Col du Géant; and accordingly started about half past four, directing the two porters, as soon as they had satisfied their hunger, to cross the valley and forage for firewood on the slopes of the Tacul. We descended over the rugged heaps of stones and boulders which form the moraine of the Mer de Glace to the bed of the Lac de Tacul, which we found composed of a fine and compact white sand, most agreeable to walk upon. This lake, which is about two hundred yards long, fills from time to time with the drainage of the glacier, when after a few days or weeks, its waters work a sub-glacial passage to some of the channels in the bottom of the Mer de Glace which communicate with the Arve, and finally carry off the

water. After a while, by some shifting of the ice, this channel gets blocked up, and the lake fills again, and remains full till its waters have found another exit beneath the body of the glacier. At this time, it was perfectly dry, though its sandy bed was traversed here and there by rills of transparent ice-cold water, which at length united into a larger stream, rushing with considerable noise and vehemence towards the side of the Mer de Glace, where it passed beneath a dark blue vault, and was lost to sight.

Beyond the lake, we mounted again upon the ice, and, pushing rapidly forward, arrived in about an hour and a half at the well-remembered labyrinth of crevasses, which we had successfully threaded just one year and five days before. The sun was getting low, but we could not forbear advancing a short distance, that we might take one more look into some of those profound and terrible chasms which, once beheld, can never be forgotten, and whose mysterious and awful charms exert such an irresistible and growing fascination upon all who have once ventured amongst them, and gazed into their blue and silent depths. But, at length, the sun was fairly gone. We had a good hour's walk before we could regain our hut; and in the dark it would not be easy to retrace our steps. Reluctantly we turned our backs upon this scene of glory and of wonder, and rapidly descended the glacier to the Lac de Tacul. Balmat did not like it at all; he shook his head, and said it "produced an effect" upon him. "Ah, monsieur, si nous étions seuls, vous et moi, nous y passerions certainement demain: mais, avec madame, cela ne se peut pas, quoiqu'elle marche extrêmement bien."

It was past seven, and quite dusk, when we reached

our bivouac. The sketches had been finished long since; and we found a general and anxious desire for tea. There was a large piece of rock just below our cabin, the top of which formed a flat slab, and made an excellent table. Balmat, who always liked to do things nicely, had even brought up a table cloth, which was laid on the rock; and on this was soon spread a tempting array of bread, butter, cold chicken and mutton, cheese, biscuits, and raisins. Salt and sugar were not forgotten; and a stock of potatoes lay at our feet to roast in the ashes of our wood-fire. There was, however, no kettle to boil the water in—no vessel, in fact, but three tumblers, and the three-legged coffee-pot; so we resolved to try a decoction of tea, instead of an infusion, and putting our tea into the coffee-pot, sent one of the men down the bed of the lake, a couple of hundred yards off, to fill it with water. While Balmat and I had been away, a copious stock of rhododendrons had been grubbed up by the two men, and a good fire was kindled, on which the tea was set to boil.

It was soon ready, and with the help of the bottle of cream, which had stood the journey admirably, a famous beverage was concocted. A more delightful evening was never passed, than we spent seated around that rhododendron fire, on the shore of that great sea of ice. The expedition had been so far a grand success, and the cookery, both of tea and potatoes, was unanimously voted a *chef-d'œuvre*. We sat chatting, joking and laughing, listening to Balmat's anecdotes of adventures among the glaciers, and watching the darkening sky, and the stars appearing one by one, till the high vault of heaven glittered with a thousand sparkling points of light, and deep night had settled on the eternal snows, and the solemn heights around. I know nothing

in nature more striking than the change from day to night amidst the glaciers. A glacier, though a scene of tremendous desolation, is not, in the day time, and in the height of summer, a scene of silence, or of absolute stillness. On the summits, indeed, and at very great elevations,

“Dull, dead silence reigns,
Ever, for ever, in the unsyllabled air;”

but in the lower parts of a glacier, below the regions of the *névé*, this is not the case; a thousand channels furrow the surface, down which rush impetuous and brawling streams, precipitating themselves at length with a mysterious, muffled sound, into those extraordinary pits, called “*Moulins*,” which often penetrate nearly to the bottom of the glacier, and afford the means of estimating its depth. Hardly five minutes ever pass, without the stillness being interrupted by the sharp report of an opening crevasse, or the noise of rocks, stones, or blocks of ice, which have been broken off, or deprived of their support by the advance or melting of the glacier, and are pushed into a crevasse, or toppled over the edge of a precipice.

This is especially the case in the afternoon of a bright day, when the warmth of a summer sun has caused the melting of the surface on which the stones are borne, or from which the blocks of ice are detached, to go on with more than usual energy. But the moment the sun is withdrawn, a change begins to take place: the melting ceases, the supplies of the superficial glacier streams are cut off, they themselves are frozen up, and the tumult of their noisy waters hushed. The volleys of stones are but seldom discharged; the blocks of ice are still less often disrupted from the parent mass; and the stillness of death reigns where, lately, the sounds

of motion and of active energy were heard. I have mentioned elsewhere, when speaking of our passage of the Allelein glacier, the piercing cold which succeeded, in a moment, to a hot sunshine, when a cloud passed over us, and how the breath froze instantly upon our veils. When such a change occurs simultaneously over the whole of those vast regions, it may well be conceived how effectually all the phenomena which owe their existence to heat are arrested. Sounds are still heard during the night, from time to time—the thunder of the distant avalanche, the crash of an occasional rock, or mass of ice, falling into a crevasse, or down a crag; but the continuous hum of glacier life is heard no more, and in the intervals all is mute as the grave.

After our tea, the men had used the pot to make their own coffee; and before retiring for the night, it was applied to a third species of cookery. Balmat, with his usual forethought, had brought some spice from Chamouni, and with the help of this he compounded in the three-legged utensil some admirable mulled St. George, and just as we were about to settle for the night, he handed it through the curtain, and urged us all to partake of it, as an excellent preservative against cold. We did so, and pronounced the pot in which it was cooked equal to a “magic stove,” and the presiding *chef*, a very Soyer.

I cannot honestly say that we slept very soundly. The floor of our cavern was on a considerable slope, and I found myself in a state of constant effort to keep myself from sliding out at the lower end. Sometimes, I was smothered in the bed-clothes; sometimes, I awoke from a doze with a shiver, and found that all the coverings had left me, on a visit to some one else. Several times, my hair got entangled in some dry twigs, which had been left at

the upper end of the apartment, and occupied the place where the pillow might have gone, had there been one. In one position, at which I several times arrived, without any wish of my own, I could see "the spangled heavens, a shining frame," with the stars winking at me, as if they were asking me how I liked it. I was frequently tempted to think that the men who lay outside, grouped about the fire, had the best of it; but Balmat confessed to me, the next morning, that it had been rather cold; and I know that, about three o'clock, the wind came very freezingly even into our comparative shelter, through the ventilating parts of the structure. I have spoken of my own condition only, for I do not pretend to record the experiences of others. I think, however, that my wife was much better off than I was, and I fancy that my brother-in-law must have been a shade or two more uncomfortable. It was a grand and solemn time, though, despite its discomforts. Until the wind became strong, which it did an hour or so before daybreak, the silence was so profound as to be oppressive. Not the lightest sound broke the deep and death-like tranquillity, except the occasional crash of an avalanche, whose thunder seemed but to intensify the stillness which ensued, when its reverberated echoes had died away.

Soon after four my brother-in-law and I crept forth, and found the men just beginning to bestir themselves. The day had scarcely yet begun to dawn, but there was light enough for me to make my way down to the bed of the lake, in search of a morning bath. There was no water-course large enough for a dip, except the main stream of all, which disappeared beneath the glacier, and was too large and impetuous to be safe; and I had, therefore, to content myself with a wash in a shallow rivulet.

I found I had forgotten to bring a towel down with me, and having stuck my alpenstock in the ground to mark the place, returned to fetch one from the hut. I discovered that with all our care, we had neglected the lavatory department, and that we must trust to the sheets to supply the want in question, while the universal pot must be put into requisition for my wife's toilette. I bore it off with me, and found that in my absence, the rivulet had been covered with a sheet of ice above an eighth of an inch thick; so keen was the frost at this hour. However, the ice was soon broken, and I took the coldest bath I ever had—after which, I filled the coffee pot, and carried it back to perform another of the multifarious objects of its mission upon earth. How it was to be used, I will not pretend to say; it reminded me of the repast the stork provided for the fox, when he played him the return match; for it was far too narrow at the mouth to admit any human hand.

While my wife was engaged in solving the problem, I searched the neighbourhood of our hut, for some memorials of our visit, to bring away. I could find no crystals worth keeping, though they are picked up of great size and clearness near the bed of the lake. Vegetation was, in general, very poor and scanty; but I found a fine head of the *gentiana purpurea*, flourishing almost as lustily as if it were in the plain. Ladies' mantle (*alchemilla vulgaris*) grew sparingly, and was somewhat dwarfed, and a few plants of the dwarf everlasting (*gnaphalium supinum*) were scattered here and there. I gathered some beautiful specimens of *salix herbacea*, which showed that, even amongst these solitudes, nature was not unmindful of the wants of the chamois. These appeared to me to be the only representatives of

the vegetable kingdom (except lichens) which the moraine supported.

It was five o'clock when my wife emerged, and we climbed to the summit of the moraine, and gazed upon the awful scene of silent desolation around us. The stillness was profounder than ever; we longed for some sound or sight of motion to relieve the tension of the mind and the senses. It is only by the contrast such moments afford, that one becomes aware how far the glaciers are, at mid-day, from being mute and inanimate. A vast mass of solid cloud lay before us, in the direction of the distant valley of Chamouni, still and motionless as the eternal rocks on either hand, and seemed to cut us off from all the living world. The white snows looked whiter than ever, in the cold light of the early morning, and the awful peaks and summits which girt us round seemed closer, vaster, more solemn and majestic than in the glare of noon. Such moments form epochs in one's life. It would be as easy to forget oneself, as to lose the recollection of that wonderful and mysterious scene.

The cold was still intense, and we were glad to find a good fire awaiting us on our return, and to learn that the coffee-pot had made another trip to the streams below, and was now brewing the tea for our morning meal, to which we sat down about half past five, our table being formed by the same broad slab of rock on which our supper had been spread. The breakfast, however, was much less successful than the supper. It was bitterly cold, and the whole affair wanted the zest and spirit of the preceding evening. A bad night's rest, the thermometer below the freezing point, and a cold wind blowing over a glacier, are not inspiring accessories to a *fête champêtre*.

The breakfast, therefore, it must be confessed, was flat; and we were not sorry to put ourselves in motion. Before starting, however, we again mulled some good red wine in the ever useful coffee-pot, a draught of which steaming beverage put new warmth into our chill and half-numbed frames. Balmat took charge of one knapsack, packed with goodly store of provender, for the long day's work which yet remained, and everything else was abandoned to the two porters, who set off at once, with our private knapsack and the traps which were to be returned to the Montanvert. We took a different direction, and made for the rocks of the Couvercle. It was now half-past six. The sun was shining gloriously on the highest peaks, and the snow was so dazzling that we were all obliged to don our coloured spectacles and veils. My wife was somewhat tired at starting, so we put her between two alpenstocks, the ends of which were held by Balmat and myself. A kind of moving balustrade is thus made, and a very efficient assistance rendered to the person between the two sticks, who, of course, leans upon them, and is at once supported and helped along. In this way, we traversed the Glacier de Léchaud, (on whose lateral moraine, near its junction with that of the Tacul, we found some magnificent white lichen, growing abundantly in long pointed blades to the height of an inch and a half) and arrived easily at the foot of the Egralets. Half way up the ascent, we rested a good while, as the prospect thence is finer than from the Jardin itself. The descending cataract of the Glacier du Talèfre, which is here broken into absolute mountains of ice, is beyond description magnificent, and you have a more comprehensive view, both of the noble basin of the Glacier de Léchaud, and of the vast amphitheatre which encircles the Glacier du Géant.

By the Couvercle, I found a noble piece of *botrychium lunaria* (common moonwort); and on the Egralets, the wild flowers were very abundant and beautiful. In many parts, the mountain side was one bed of flowers. The geums and golden potentillas glowed like so many miniature suns, the gentle veronica rose gracefully from the herbage, here and there the *viola calcarata* shone conspicuous among lowlier flowers, and blue patches of *myosotis alpestris* contrasted pleasingly with the surrounding green.*

There was far less snow on the ascent this year than on any of my former visits; places, down which, last year, we had been able to perform glissades on the snow for hundreds of feet at a time, were now bare, dry and dusty. The stretch of the Glacier du Talèfre, which is crossed to reach the Jardin,† was

* The best time of the year for the flowers was past. In 1857 I was at the Couvercle earlier than I had ever been before (August 13), but the months of June and July had been hot and dry almost beyond precedent, and the flowers were far less abundant than I have usually seen them two or three weeks later. That charming little flower, the common eyebright, seemed to be doing its best to make up for the absence of its fellows, for it was blooming with uncommon brilliancy, and in unusual abundance. We also found the *rhinanthus glaber*, the slender *bupleurum stellatum*, with its triple clusters of black flowerets enclosed in whorls of delicate pale green bracts, and the *tussilago alpina* (Alpine coltsfoot). Nor must I forget to mention the fairest flower of the mountains, the "rose of the Alps" (*rosa alpina*), of which we discovered a beautiful bush growing at the foot of a dangerous slope of dry and wiry turf, about fifty feet below the Egralets, at the edge of a precipice which overhangs the Mer de Glace. I had caught sight of it, and was just beginning to grope my way cautiously down the slippery and treacherous surface, when the ever watchful Balmat, exclaiming against my temerity in venturing upon so dangerous a descent, rushed past me, and had gathered a bunch of seven or eight of these exquisite flowers, almost before I had time to utter a word of protest against being thus robbed of the glory of so successful a foray.

† Last year (1857), I took to the ice about twenty minutes'

not so wet as I have usually found it, for it was still early in the day; and we reached the Jardin before ten o'clock. Here my wife and her brother resolved to sketch, and Balmat and I to employ our time in a ramble upon the further and larger branch of the glacier, which lies beyond the Jardin. When H. and I were here, two years before, we had requested our guides to conduct us back by a different route from that by which we had come; namely, across the glacier, and down the shaggy side of the base of the Aiguille de Léchaud, descending upon the glacier de Léchaud beneath the Pierre de Béranger, and above its junction with the Glacier du Talèfre. We had two bad guides, and they had absolutely refused to return by this route, alleging that the descent from the Jardin to the ice was bad, and the crevasses of the glacier dangerous. The latter assertion we could see to be untrue, and I was therefore not surprised to find the former equally without foundation. In a few minutes we reached the ice, without the least difficulty, and found it compact and hard, and the footing admirable. We crossed to the other side, and wandered up and down the moraine beneath the Aiguille de Léchaud, where Balmat informed me good crystals were sometimes to be found. We had hardly begun our

walk before the spot where it is usual to quit the moraine, and made my way directly across to the foot of the moraine which encloses the Jardin. There are a few crevasses to be turned—but I experienced no difficulty whatever, saved myself a fatiguing climb over the moraine of the Talèfre, and gained a good half hour upon my companions, who kept to the ordinary route. There was less snow than usual, however, in 1857, and when the crevasses are concealed the common route is the safer. In July, 1836, a Chamouni guide, Jullien Michel Dévouassou, taking this direction, fell through the snow into a crevasse, from which he extricated himself with great difficulty and suffering. (See Professor Forbes's Thirteenth Letter on Glaciers.) When I crossed, there was no danger of such an accident.

search, before we picked up two large crystals of smoky quartz, of unusual clearness. The largest, nearly four inches long, was without a flaw, and very dark. We could not, however, find any more, though Balmat thought, from geological indications, that if we had time to climb some distance farther up the Aiguille, we should probably fall in with some treasures.

Retracing our steps across the glacier, we joined the rest of the party. It was past mid-day, and extremely hot, and I found my wife had been dozing more than sketching. In fact, she was exhausted, and declared she could not move. I was seriously alarmed, and began to think I had induced her to exert herself beyond her strength in making this expedition; but I knew the heat of the Jardin, and hoped that if she could once get to the fresher atmosphere of the Mer de Glace, she would soon revive. We made the best couch we could, with the wraps we had brought, and with a plaid stretched upon three alpenstocks managed to construct a tolerable shelter from the rays of the sun, and laid the patient down to sleep for a while. In half an hour, which Balmat and I occupied in botanizing,* she awoke, greatly refreshed, and after the administration of a little cognac, "qui donne des jambes," (as a

* The Jardin does not look much like a garden. It is, in fact, a collection of huge boulders, lying on a sheltered southern slope; but its nooks and corners are rich in Alpine wild flowers. During a short and hasty search, we found, besides the ubiquitous *linaria alpina* (Alpine toadflax), *geum montanum*, *potentilla aurea* and *euphrasia officinalis* (eyebright), all of which were abundant, *gentiana acaulis* (a very fine specimen), *g. punctata* (also fine) *g. verna*, *g. purpurea*, *ranunculus glacialis* (small), *r. alpestris* (very clear and delicate), *potentilla alpestris*, *luzula lutea* (yellow woodrush), *erigeron alpinum*, *e. uniflorum*, *veronica officinalis*, *v. alpina*, *v. bellidioides* (daisy-leaved v.), *tussilago alpina* (Alpine coltsfoot), *primula viscosa*, *saxifraga bryoides* (very bright and delicate).

guide once said to me, when I lay in like evil plight, exhausted and nerveless) she found she was able to proceed.

The Glacier du Talèfre was much wetter and more sloppy than when we came. The sun had been playing upon it with great force for three hours more, and every step plunged us into a watery slush. In this state, it is slippery and treacherous. Knowing that it was impossible for any shoes to keep the feet dry, I had advised my wife to reserve her thick hob-nailed boots, which she had worn in the morning, for the rest of the descent, and to put on a thinner pair I had taken the precaution to bring with us from the Tacul. These had no nails, and it taxed all Balmat's power as well as mine to keep her from a fall as we recrossed the Talèfre. The difficulty of keeping the feet without nailed boots or shoes, in such a place, is hardly conceivable by those who have not tried it; sometimes we had very nearly to carry her, where it was unusually wet and slippery. However, we reached the opposite moraine in safety, the wet shoes and stockings were changed, and we began to descend the Egralets as fast as we could. I had been greatly afraid of this bit of the road, as the heat is here tremendous; but the motion of walking down-hill is, of itself, a great relief after a long ascent, and shortly before we reached the Couvercle, a fresh breeze from the Mer de Glace and the Glacier du Géant saluted us, and gave my wife fresh strength and energy. A slice or two of cold chicken, and a draught of iced St. George proved great restoratives, and soon after we resumed our march across the Mer de Glace towards the Trélaporte, she began to feel the effects of that marvellous tonic, the keen atmosphere of the glaciers, and walked well again. She experienced,

however, what I have often found, that the veil, though an absolute necessity when any considerable distance has to be performed amidst the ice and snow, adds much to the labour, by interfering with the freedom of respiration. On the Mer de Glace, there is never any lack of sights and sounds of interest, which go a long way towards drowning the sense of fatigue, and we reached the Trélaporte without difficulty, about half-past three. We could not fail to be reminded, in our passage across the glaciers, of the striking contrast we had already noticed between its hum of ceaseless activity at noon-day, and its stern repose at night. Arrived at the Trélaporte, we felt our difficulties to be past. The Montanvert was within easy reach; the object of our expedition had been accomplished, we had not only visited the Jardin, but had passed a night amidst some of the grandest scenes in creation, and had witnessed a sunrise and sunset, such as seldom indeed it falls to the lot of man to behold. We had seen something of what camping on the mountain means, and beyond the inconvenience of my wife's temporary exhaustion, had met with no check to mar our pleasure. After a few minutes' rest on a grassy bank at the Trélaporte, she seemed quite herself again, and was able to do full justice to the excellent meal which still remained in the knapsack of the provident Balmat. With cold chicken, bread, cheese, raisins, and chocolate, and a bottle of "Champagne du Mont Blanc," (an excellent light sparkling wine) which we had reserved for to-day's dinner, and the remnants of our St. George, we sat down to a meal which would have done honour to any pic-nic in England, and arose new people, fit to begin the day's work again. My wife resumed her journey, with a light and elastic step which

showed little trace of the hopeless exhaustion she had felt at the Jardin. We had still nearly two hours' walk to the Montanvert, whither we arrived about six o'clock. My wife had so completely recovered from her fatigue, that she wished to return at once to Chamouni, instead of sleeping at the Montanvert; so we ordered out the mule, and after indulging ourselves in another dish of our host's capital mountain strawberries, set forth again. It grew dark, however, long before we reached the plain, and the mule stumbled so much in the rough path, that she was obliged to dismount, an hour before reaching Chamouni, and finish the journey on foot. There is, perhaps, nothing so tiring as a descent of this kind in the dark. You cannot see where you are going to step, or what lies in the path, and the feet and ankles get cruelly knocked about. The path from the Montanvert is often so narrow that it is very difficult to render effectual assistance to another person; and we all found this the most painful part of the day's work. When we arrived, about half-past eight, at the Hotel Royal, we were all glad it was not a hundred yards further.

The expedition I have sought to describe was, I believe, a new one at Chamouni. Thirty or forty years ago two ladies, and shortly after our expedition a gentleman and his daughter, well known to Swiss travellers as having ascended together Mont Blanc, Monte Rosa and the Galenstock, crossed the Col du Géant, sleeping at the Tacul, by the way; but except in these instances, and the rare cases of ascents of Mont Blanc by adventurers of the fair sex, I believe no lady is recorded in the annals of Chamouni as having deliberately and of set purpose spent a night on the bare mountain side. We have shown that the thing is practicable; and I hope our example

will not want followers. Balmat fulfilled his promise. Not the ghost of a cold was caught by any one; and after a couple of days' rest at Chamouni, my wife was ready to begin her travels again. The enjoyment of the excursion was far more than sufficient to compensate for the fatigue and discomforts; and some portion of these were not necessarily incident to the expedition. Were I to attempt it again, under similar circumstances, I should be inclined, in the first place, to construct a more horizontal floor than we did, in the cavern; we were hardly aware how much it would have added to our comfort. Then, again, I should be disposed to take more wrappings, and myself to sleep well rolled up in blankets, by the side of the fire. In this way, I think, a far better night's rest might be enjoyed by all. Then, again, if it appeared likely that it would be rather too much to reach the Jardin, there would be no difficulty in stopping short, half way up the Egralets. The views to be had thence are certainly finer than from the Jardin; and no sensible person would care to push on to the Jardin, simply for the sake of saying that he or she had been there. Again, we stayed too long at the Jardin. I forgot, in my search for crystals, how hot and exposed a spot it is. It would have been better to have made a much shorter halt there, and to have rested longer above the Couvercle, or on one of the moraines of the Mer de Glace. By aiming at a less distant point, we should have got back to the Montanvert in better time, and should have been saved the disagreeable descent in the dark to Chamouni. By sleeping before and after the expedition, or even only once, at the Montanvert, the labour of each day would be reduced within very moderate bounds. I have no

doubt I could so conduct the enterprise a second time, as not to entail any unpleasant amount of exertion upon any one. The recompense, to a lover of the grand scenery of the High Alps, is such as I have no fear of exaggerating. No words can adequately describe the strangeness, wildness and majesty of the scene. No pen can record the impressions of wonder, mystery and awe which are stamped, once and for ever, on the soul. We all of us look back on that evening, passed beside the rhododendron fire, as one of the most memorable in our lives.

Great care is necessary in planning and carrying out such an undertaking. It would be madness to think of it, except in most settled weather. The summer and autumn of 1854 were the finest that had been known for many a year in Switzerland; and we were at Chamouni during the finest part of the season. In July, it would probably be too early; in September, it would almost certainly be too late, for such an excursion. The first fortnight in August is generally fine, and the mornings are less intensely cold than when we were at the Tacul. The assistance of a superior guide is indispensable; of a man who is something of a gentleman, as well as familiar with the ice, and whose tact and refinement will make him an acceptable companion where ladies are of the party, and will suggest to him the various little matters of arrangement and contrivance which may reduce to a minimum the unavoidable discomforts a lady must endure in so wild a spot, and with such primitive accommodation. But there is no sort of occasion for a multitude of guides. Two or three porters will easily carry everything that three people can require. There are no serious glacier difficulties to be encountered;

what is wanted is the strength of the porter, not the skill of the guide.

We performed the whole of the journey with only one guide; half a dozen more would have been of no service to us. A more prudent man does not breathe than our good friend Auguste Balmat; and I should have gladly engaged any number of guides he might have thought advisable.

When we returned to Chamouni, the chief guide sent for him, and took him severely to task for not insisting upon at least a guide a-piece; but Balmat referred him to the rule, which required one guide for "chaque monsieur," and asserted that the law was silent in the case of ladies, and therefore he was not bound to provide one for my wife; that with my brother-in-law he had nothing to do; it was I who engaged him, and he was not bound to take another guide for the lady. "But suppose," said the chief guide, "you had all fallen into a crevasse?" (a thing about as likely to happen on that part of the Mer de Glace, as in the chief guide's office). "Oh!" answered Balmat, "nous avions arrangé tout cela, que nous ne péririons jamais tous ensemble, mais qu'il y aurait toujours un de laissé pour en rapporter les nouvelles."

Any persons who meditated a similar expedition would certainly do well to follow our example, in making their arrangements and preparations as quietly as possible. It is the only way of avoiding a good deal of idle and troublesome curiosity, and of escaping the vexatious interference of the chief guide, who would infallibly require a host of unnecessary guides to be taken; not only a disagreeable, but a costly incumbrance. Every guide has not only to be paid, but to be fed; and a guide, as Mr.

Weller said of the red-nosed man "isn't by no means the sort of person you'd like to grub by contract." As we did it, the expense of the expedition was not formidable. It cost us between £5 and £6—not a very extravagant sum, when divided amongst three persons; and I am satisfied that no one who should make the experiment would consider his enjoyment dearly paid for.

CHAPTER III.

THE INUNDATIONS OF 1852.

Immensum cœlo venit agmen aquarum,
Et fœdam glomerant tempestatem imbris atris
Collectæ ex alto nubes ; ruit arduus æther,
Et pluvia ingenti sata læta boumque labores
Diluit ; implentur fossæ, et cava flumina crescunt
Cum sonitu.

VIRG.

Nunc ea quo pacto gignantur, et impete tanto
Fiant, ut possint ictu discludere turreis,
Disturbare domos, avellere tigna, trabeisque,
Et monumenta virûm demoliri, atque ciere,
Exanimare homines, pecudes prosternere passim,

* * * *

Expeditam.

LUCRET.

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St. Rémy—Heavy Rain—German Students and Noisy Italians  
—The St. Bernard—The Morgue—Descent in the Rain—  
Swollen Stream—Tidings of Disaster—Broken Bridge—Night  
at Sembranchier—Mountain Walk to Martigny—Aspect of the  
Valley of Trient—Mud Torrent—Col de Balme—Bad Quarters  
—The Valley of Chamouni—Destructive Ravages of the Flood  
—State of the Road to Geneva—Bonneville—Rapid Rise of  
the Waters.

On the 15th of September, 1852, the day after we crossed the St. Théodule, (as recorded in a subsequent chapter) we arrived late in the evening at St. Rémy, about two hours' walk below the Hospice of the St. Bernard, on the Italian side. The evening was dark and rather cloudy, but the clouds were high, and there was nothing to make us

afraid of bad weather the next day; and having found a return muleteer who agreed to carry our traps to Liddes, we arranged for a start at six the next morning. When we awoke, however, we found the rain pouring in torrents, and the leaden sky without a break in any direction. Every portion of the heavens looked exactly alike, and you could not even say that it was thicker here, or a little lighter there; so we turned round, and made use of our enforced leisure to lay in an extra stock of sleep. All the day long, the aspect of things was precisely the same—a dull, grey atmosphere, a chill breeze sweeping up the valley, and an universal and all-pervading sense of damp; the walls running down with moisture; the deep eaves of the house discharging a copious stream into the street, through which a respectable water-course was flowing; the cattle bells sounding faintly through the thick atmosphere; the cattle themselves steaming, as if in a vapour bath, and looking sodden and miserable; the few passengers up and down the valley shaking themselves, the moment they got under shelter, like dogs just out of the water, and making futile attempts to dry their reeking garments at the wood fire in the kitchen. Even in front of this it was damp, and everybody and everything had a limp and untidy appearance. The only being upon whom the weather seemed to have no effect, was the police and passport officer at the corner just above the inn, who stood in the doorway, looking down the street, and smoking his pipe as if it did not matter to him whether it was wet or fine, except that as his office was pretty nearly a sinecure on a day like this, it was rather more agreeable to him than the sunshine. The muleteer came in several times, to try and persuade us that it was a very nice day—not at all

wet—and in fact rather pleasanter, on the whole, than usual; but at last he retired discomfited, on our telling him we should wait a week if the weather did not clear up. We were not badly off for employment, as our clothes wanted both substantial and ornamental repair, and we had letters to write; and we passed the day with less ennui than might have been expected. The only incident was the irruption of six German students, who made more noise, and a heartier lunch at a smaller outlay, than I should have supposed it possible for six men to do. As far as my experience goes, it is very unfavourable to the class of German students one meets travelling in Switzerland, in parties of six or eight together. They are, no doubt, a very unfair specimen of the genus; but I have seldom elsewhere met with such noisy, rude and ill-conditioned men. A similar party, whom we met at Saas, behaved with a deliberate and intentional rudeness which I have never seen equalled, and which very nearly provoked a quarrel, and although that is an extreme case, yet I have scarcely ever found them agreeable fellow-travellers; and I believe the experience of most persons will accord with my own in this respect.

In the evening, a party of Italians came down through the rain from the Hospice; but they proved even worse companions than our student-friends, as they stayed the whole evening, and slept at the inn. There is hardly a more agreeable person to be found than the well-bred and well-educated Italian gentleman, such, for instance, as a gentleman we had met, a day or two previously, at La Burka, who had come up from the plains to enjoy a few days' shooting among the mountains, and such as another sportsman who had been weather-bound like ourselves at St. Rémy, and with whom we had had a great

deal of pleasant chat; but the inferior order of Italians, such as you not unfrequently meet on passes like the St. Bernard, which are much used for business purposes, or on the great diligence roads of the Simplon or the St. Gothard—persons of the class of small tradespeople and commercial travellers—are, almost without exception, a very disagreeable set. These people were noisy, dirty, spitting, and generally ill-conditioned. One of them beat all men I have ever seen, in the nastiness of his way of smoking. Hannibal Chollop would hardly have been as unpleasant a companion; for he could “calc’late his distance,” which this man could not do. After tea, the whole party of seven set to work resolutely, drinking and smoking. One, an elderly man of shrivelled frame, and wearing an enormous white neckerchief, soon got quite fuddled and maudlin. They engaged in a religious discussion about the advantages and the necessity of priestly intercession, and, as we thought, handled their topics with an irreverent and shocking familiarity. The half-tipsy, clerical-looking man came out particularly strong on matters of this kind. We found it difficult to write amidst their uproar, which beat even the German students of the morning; but then half of these men were drunk. We sought to escape by going to bed; but it was long before we could get to sleep, for the noise, which, the landlady told us next morning with great disgust, they had kept up till long after midnight, having drunk between two and three bottles of wine a-piece.

Friday morning (the 17th of September) was wet again, but not quite so hopeless to look at as it had been the day before; and we got up at five, to take advantage of any improvement in the weather. It was past nine, however, before we were able to start,

and then the rain came on fast in about twenty minutes. Still, we resolved to push on; and about eleven reached the Hospice, wet to the skin. Even at this height, there was no snow or sleet falling: rain, rain, rain, everywhere, both night and day—an unusual circumstance, which inspired some uneasiness; as, if this rain were falling on the snowy tops of the mountains, the drainage would be enormous. Already, people began to be apprehensive of the consequences. It was a close, hot day, much warmer than yesterday; and we found walking hard work, with our packs to carry. I cannot say we experienced on this occasion the warm and hearty hospitality for which the convent is so celebrated. Wet through as we were, no offer was made to dry our clothes; and three or four travellers in the salon—none of them our own countrymen—monopolized the scanty fire, and showed no disposition to admit us within the magic circle. Happily for us, dinner was announced shortly after eleven; and during their absence, we wrung out the wet from our dripping garments, and dried them as well as the small fire would allow us.

The hospitality of the convent is so proverbial, that one is almost afraid to give any impression which may seem to detract from that reputation; but I must say my own experience has been—and many travellers have made the same remark to me—that it is much better to visit the Hospice accompanied by ladies, than as a bachelor. The next year, my brother and myself breakfasted at the Hospice one morning, and thought it rather cold comfort altogether. The ladies of our party, and the friend in whose charge we had left them for a day or two, while we crossed the Col du Géant, had slept there the night before, and left about ten minutes before

we arrived. We caught them at Martigny, and found them loud in their praises of the abundant hospitality and delicate attentions of the good fathers. I have no doubt that, were one's situation such as to make one stand in any real need of their good offices, no trouble or attention would be spared, and that the most careful and unremitting kindness would be lavished on the humblest sufferer. I am speaking only of the want of that external cordiality, and warmth of reception, which are so delightful in strange lands and strange places, and which, in the course of a few hours, produce an impression, to which the memory clings gratefully and gladly for years afterwards. Such a reception I certainly experienced at the St. Bernard, on the only occasion on which I had the good fortune to visit the Hospice in company with a lady; and such a reception I once met with, when not provided with that excellent letter of recommendation, at the Hospice of the Simplon, where I passed one of the most agreeable evenings of my life, and had the pleasure of some hours' chat with one of the most refined and accomplished gentlemen I have ever encountered.

There is one part of the arrangements of the Hospice of the St. Bernard, which is certainly not creditable to the judgment or good taste of the monks. The place in which the guides usually have to pass the night is the common room, in which all the inferior order of travellers are indiscriminately accommodated; and your guide, who is generally a respectable fellow, and, if from Chamouni, often a man of some education, and gifted with a strong sense of decency and propriety, is huddled together with beggars, tramps and ruffians of the most disgusting character. All travellers must be familiar with the horrible objects—masses of human degra-

dation and deformity—which the indiscriminate bounty of a convent always attracts, and it is really painful to think of such men as many of the guides are, being forced to herd with such beings. I have never met a guide, who, if questioned, did not avow that he would rather sleep anywhere than at the St. Bernard, and many have told me that, when there, they never venture to take off their clothes. For this reason, I should always avoid, if possible, making my guide sleep at the Hospice, even if I passed the night there myself; and I think many persons, if they knew the fact, would be anxious to save their guides from the degradation and discomfort it involves.\*

About half-past twelve, the clouds appeared inclined to break, and having partaken of a slight lunch, we prepared for a start. We visited the Morgue, which I had seen two years before, and found many of the ghastly tenants hardly changed by the additional exposure.

“Side by side,  
Within they lie, a mournful company,  
All in their shrouds, no earth to cover them,  
In the broad day; nor soon to suffer change,  
Though the barred windows—barred against the wolf—  
Are always open.”

The terrible figure in the right-hand corner, with the eyes starting from the head, and with that fearful expression of terror and mortal agony, was as perfect as ever, and seemed exempt from the ordinary law of decay. There was one new occupant—a workman who had been coming up, the preceding winter, from the Valais. He had slept at the Cantine, but

\* After a fourth visit to the St. Bernard (1857), I cannot honestly soften or retract anything I have said about the treatment to which the guides are subjected.



had not waited, before starting, for the customary messenger to arrive, with supplies of food and stimulants, and, the weather being very bad, had sunk exhausted in the snow, before he could complete his short journey, and perished with cold and hunger almost within sight of his destination. There he lay, just as he had fallen, on one side, the left knee slightly bent, and the head thrown back in hopeless fatigue and exhaustion. He wore a thick cloak, gracefully gathered about him, and well wrapped and fastened round the throat. It was now blanched by the frost, and white as marble. His skin was already black with exposure, and the only fragment of his clothes which retained a tinge of colour was part of a blue worsted cuff on his left wrist. No statue ever told its tale of suffering as did that prostrate, mouldering figure. When next I saw the Morgue, the following year, there was no recognizable feature or expression left. We did not find the air untainted, as we had expected, but it came with a sickening odour, as it was blown over the blackening corpses within.

It soon came on to rain again, and the swollen stream flooded over the path, which, for miles, was turned into the bed of a water-course; and the heavy rain and an impenetrable mist rendered the walk anything but agreeable. Only once now and then the mists would open for a moment, and, as through a rent in the grey curtain, we caught a glance of the great white glaciers of the Velan, made purer than ever by the deluge of rain. Just before arriving at the Cantine, we passed through a kind of little gorge, where the stream was confined within very narrow bounds, and was but an inch or two below the path, foaming, tearing, and raging madly along with its accumulated waters. We thought that if

the rain continued a few hours longer, it would be impossible to pass this spot.

The scenery of the St. Bernard is so well known, that it would be out of place to describe it here, interesting as it is; I will only mention, that the whole valley, from the Hospice to within a few miles of Martigny, must once have been the channel of a vast system of glaciers; it is curious to read their history, as plainly written on the face of the polished and striated rocks, and marked by the granite boulders deposited hundreds of feet up the side of the valley upon the surrounding schist and limestone, as ever the doom of Belshazzar was written in mystic characters on the walls of the palace of Babylon. Even the lofty bulwarks of the lateral ravines are monuments of primæval history, and bear record of the tributary glaciers which once poured down from their bare and rugged heights.\*

At Liddes we were able to dry our clothes, and to hire a carriage to take us to Martigny; for which place we started about four o'clock. The road descends by a series of well-executed zig-zags, through a rich and highly cultivated country to Orsières, after which it runs a long way by the side of the Drance. We had already begun to hear rumours of a bridge being broken down, somewhere, and the appearance of the river was not inconsistent

\* When passing across the little plain above the Cantine, a year later, in fine weather, I found it gemmed in the most beautiful manner with the tiny but brilliant flowers of the *gentiana nivalis*, which grows here in remarkable abundance. Nearer to Liddes are great quantities of *g. campestris*, a much less elegant flower. The *campanula rotundifolia* is also found growing freely between Liddes and Orsières. Near the Hospice, I found a fine specimen of *viola tricolor*. The steep slopes just below the lake, on the Italian side, are sprinkled over most beautifully with *alchemilla alpina*, which I have seldom seen elsewhere so large and flourishing. Nearer St. Rémy, *myosotis alpestris* is also abundant.

with such a supposition. It was rushing with a furious and fearful stream, boiling and surging like an angry sea, and in places had carried away half of the road, had overflowed its banks, snapped asunder trees, carried off crops and stacks of hay, sheep and other live-stock, and had made terrible devastation along its banks. The noise of the huge boulders rolled over and over like play things, which came up smothered through the water, was really awful. At Sembranchier, they told us the bridge by which the road crossed the Drance was really broken down, but that enough remained for us to cross on foot, and that from there we must walk to Martigny. As we proceeded, almost every peasant we met hailed the driver, and animated discussions followed, in a harsh patois, wherein we could distinguish the frequent recurrence of "piéton," (foot passenger) always followed by an eager and excited negative, and at length we were convinced that it was useless to proceed, and unwillingly turned back to Sembranchier, which we reached, about half past seven, tired, cold and hungry. We put up, with some fear and trembling, at a very queer village inn, of most unpromising exterior, and full of odd passages, doors and staircases, where the landlord took a long survey of us from an upper window, before admitting us. Once within the walls of his house, however, we had no reason to complain of a scanty hospitality; he busied himself most energetically in lighting a fire which made us appreciate the full force of the comparison between a slothful messenger and smoke to the eyes, and prepared for us some most excellent coffee, as delicate and well flavoured as a Parisian café could supply. He assured us we need fear no "beasts;" and to our great surprise we found his beds, though hard and furnished with coarse home-spun linen, amply

justify the character he gave of them, and we enjoyed as sweet a night's rest as the most luxurious chamber could have given us.

Next morning, (Saturday, September 18th) we were up at five, and after an excellent breakfast, with plenty of eggs, asked for our bill. The girl who waited upon us appeared never to have heard of such a thing; but after some explanation comprehended that we wanted to know how much there was to pay, and after a long consultation with her master and mistress, reappeared, and asked if we should think *six francs* too much (for three of us)! We found there would be no chance, at present, of passing the Drance by the usual road, and were obliged to cross by a substantial stone bridge close to Sembranchier, and then, (as there is no possibility of making one's way along the side of the river) to mount the shoulder of the range which separates the valley of the Drance from that of the Rhone, and descend upon Martigny. It was a beautiful morning, and all nature looked doubly fresh and bright after the two days' rain. An hour or so of very pleasant walking, through woods, and over pastures sparkling in the early sunshine, brought us to the top, whence we had a charming view down the valley of the Rhone to the Lake of Geneva, whose blue waters lay sleeping on the distant horizon. About St. Maurice, and between that village and the cascade of Sallenche, the country was under water for miles, and in many places the water stretched from side to side of the valley, and must have rendered the road utterly impassable.

About nine o'clock we reached Martigny, and after breakfast number two, set off again for Chamouni, uncertain whether to go by the Tête Noire or the Col de Balme; but the question was presently

decided for us : soon after starting, we learned from some guides whom we met, that the Tête Noire was impassable, as a bridge had been carried away, and in many parts the road itself swept off ; in other parts it was flooded, and it was altogether impossible to get to Chamouni by that valley. We were accordingly obliged to determine on the Col de Balme, though it remained to be seen whether we could reach Chamouni that night. In ascending the Col de Forclaz, we saw nothing unusual in the appearance of the country ; but every person we spoke to had some fresh tale of destruction to tell us.

It was a brilliant day, with a burning sun and a cloudless sky ; and the heat of the Forclaz is well known. In many places, little rills of water were bursting up from the ground in the middle of the path, and the streams which flowed from them cooled our parched feet, and refreshed us pleasantly, as we toiled up the hot and rough pavement with which a great part of the ascent was laid.\* Pears, plums and grapes were offered to us in abundance by the children, for which any moderate payment was received with astonishment and disgust. The Forclaz is the very head-quarters of mendicancy and imposition. Every child is taught to beg, almost as soon as it can speak ; and money must be the recompense of the commonest courtesies. A friend of mine was once toiling up the Forclaz, under the broiling sun of a hot August noon-day ; and, not being very well, lay down under some trees by the side of the path, almost exhausted. A peasant passing by, the traveller asked how far it was to

\* A very good road has lately been made up to the top of the pass. The descent to the valley of Trient, also, has been much improved, by cutting a longer zig-zag than the old one.

the top. "Give me some money, and I will tell you," was the answer.

We loitered a few moments at the summit of the Forclaz,\* to enjoy the lovely view up the rich and smiling valley of the Rhone, and then descended into the valley of Trient, where we found the river very much swollen, and running in many different channels. Only one bridge was left throughout the length of the valley, and by this we crossed to the hamlet of Trient. The floods had begun to subside, and we saw many spots which, two or three days back, had been fertile fields, now nothing but a wearisome waste of boulders and mud. The contrast was strange, between the angry torrent and the scene of destruction around, and the deep blue of the quiet, cloudless sky which formed our canopy and set off to great advantage the magnificent glacier of Trient, at the head of the valley, with the frowning crags and rocky peaks which crown it. While we stood gazing on this scene, our attention was roused by a sharp cry from the mountain side on our left, and looking up we observed that a torrent of mud had suddenly burst forth from above the path we had just quitted, and was pouring slowly over a potato field, in which a man had been at work. It came creeping irresistibly on, spreading as it descended, and in a few minutes the poor fellow's hopes of this year's crop were destroyed, and the thick and muddy stream was carrying similar devastation over the neighbouring fields.

\* ὑψηλῶν ὀρέων κορυφὰς ἐπὶ  
 δενδροκόμους, ἵνα  
 τηλεφανεῖς σκοπιὰς ἀφορώμεθα,  
 καρπούς τ' ἀρδομέναν ἱερὰν χθόνα,  
 καὶ ποταμῶν ζαθέων κελαδήματα.

About half past two, after a short halt at Trient, we resumed our march, and passing some little distance up the course of the stream, soon turned to the right, and began a most beautiful climb through well-shaded, moss-grown slopes, steep, but very pleasant both to the eye and to the feet. We wound through clumps of stately pines, and, to descend to smaller objects, walked amongst acres of bilberry bushes, laden with dark, ripe fruit, and over numbers of beautiful wild flowers. The pretty and delicate *viola biflora* was growing freely here. In several places, long stretches of the path had been washed away by the recent rains, and we had to clamber over the rocks, and make our way as best we could.

Before long, we turned to the left, and entered a less steep, but very barren, tract, where the brown and scanty turf was strewn with a profusion of boulders and débris, and intersected by many a clear mountain torrent. The view over the Forclaz, towards the Dent de Morcle and the Dent du Midi, was very fine whenever we happened to look back. As we neared the top, a long stretch of the snowy Alps, from the Diablerets to the Sanetch, came in sight.

We reached the chalet at the top of the Col de Balme about four, and, on looking towards Chamouni, beheld a great part of the valley filled from side to side with a sheet of water, which precluded all idea of reaching Chamouni that night. So we engaged such beds as the chalet afforded, and strolled out to the commanding eminence of the Croix de Fer Rouge, from which a better view can be obtained. Mont Blanc hid his head in the clouds; but his great bands of guardian aiguilles stood out in bold and sharp relief. The wind was keen, but we lay on the ground, and with the help of the map made out

every peak and glacier in the view, and stayed, enjoying the magnificence of the prospect, till the sun went down behind the Aiguilles Rouges, and the fast-fading light warned us to seek our night's shelter. We found an Italian gentleman and his wife, who were going to sleep at the chalet likewise; and two English gentlemen came in afterwards, so that we were seven in all. There were only six beds, two in each room; but to accommodate the Italians, we consented to abandon our claim to the second bed-room, and to sleep, all three, in a room about eleven feet by six; a piece of courtesy which the gentleman requited by a deliberate and well-planned attempt to deprive us of one of our beds, which it required no small determination and perseverance to baffle. It was cold enough, at this height, and in such a building as the chalet; but our friend and his wife established themselves in front of the fire, where they made an admirable screen; and it was not until the Signor was nearly singed, that he offered to stir, when he frankly said he was too hot, and should be glad to change places with one of us.

The fare was tolerable, when we got it; but the host unmannerly, grudging and churlish, and it was with great difficulty that we could procure anything to eat or drink.\* Luckily, in the course of a foraging expedition, I found out where the wood was kept; and we did our best to keep ourselves warm. When we retired to bed, however, we found the beds and blankets quite wet. We were all obliged to get

\* I am happy to say it is far otherwise at present. I slept at the Col de Balme several nights in August, 1857, and found it greatly improved. The beds were clean and dry, the fare, for that height, excellent, the charges reasonable, and the host most attentive and obliging.



up again, one after the other, and put on, first socks, then trousers, lastly coats, and sleep in them as well as we could. We dozed uncomfortably till half-past four, when we got up; and I had twice to go a quarter of a mile down the hill to fetch water to wash in. We could get none in the house.

The sunrise was not so fine as we had hoped it would be, for heavy banks of cloud lay on the mountains in every direction, and threatened a speedy downfall. Early as we were, when we came in from our morning walk, we found that the others had been beforehand with us in breakfasting, and that nothing was left in the house save a small piece of bad bread, which we could only manage at all, by toasting it thoroughly. It was black, sour and sodden, and there were only three or four mouthfuls apiece for us. We started, very hungry, about half past six, and walked leisurely down to Le Tour. We could not go fast, as Mr. A. had a mule to carry his traps, and we had to accommodate our pace to the taste of the quadruped. It was a nice walk, over soft turf and down a gentle slope, as pleasant to the feet as any I know.\*

At Le Tour, we heard sad accounts of the ravages of the floods, and learned that the bridges, and a good deal of the road to Chamouni were carried away, and that we must scramble for it. We engaged a man to show us the way, and it was not long before we came to the marks of the devastating

\* The Col de Balme is very rich in flowers. In the course of one afternoon last autumn, (August 14, 1857) I collected specimens of *scabiosa columbaria*, *dianthus sylvestris*, *alchemilla vulgaris* (very fine, indeed), *campanula barbata*, *polygonum viviparum*, *arnica* (sp.?), *aster alpinus*, *ranunculus glacialis*, *anthyllis vulneraria*, *thymus alpinus*, *galeopsis ladanum*, *linaria alpina*, *saxifraga cotyledon* (a splendid specimen), *teucrium montanum*—the last three close to the source of the Arve.

power of the torrent. A quantity of good meadow land, which had stood at least a dozen feet above the stream, had been washed bodily away,—and more was threatened. The peasants were hard at work, casting in great blocks of stone, to form a breakwater, and divert the course of the torrent.

We were shown a place where, yesterday, two houses had stood high on the bank; to-day, land, houses, everything was gone—not a stick or a stone was left to mark the spot, over which the swollen waters were raging and roaring. A little further, we met about forty men and women, dragging a large pine, branches and all, to cast into the stream, to stem, if possible, the destructive current. We lent a hand, and throwing down our packs laid hold of the ropes, and helped with a hearty good-will to drag the unwieldy mass some couple of hundred yards, up hill, over swampy ground. The labour was harder than I should have expected, and I almost wondered they could get the tree along at all. The poor fellows thanked us with a simple and touching cordiality, and seemed much gratified at this little mark of our sympathy. “*Jamais une telle chose nous est arrivée,*” one fine old fellow said, “*que des voyageurs nous aideraient à notre travail.*” About a half an hour’s very rough scrambling was necessary before we could reach Argentière, as a bridge was broken down, over a torrent from the right, which we had great difficulty in crossing. Here, we found the parsonage had been in great danger, and had only been saved by casting large trunks of trees into the river, as a kind of rude breakwater, and securing them by ropes made fast to the curé’s window.

I found that an old friend of mine, Matthieu Simond,

(not he of the Col du Géant) had been a considerable loser; his bakehouse having been carried away. One thing struck us very much—the uncomplaining way in which the people all spoke of what had happened. There was a simple manly fortitude about almost all, which impressed us very favourably. One old gentleman talked to us five minutes before we discovered that he had lost a great part of his property by the flood. “But not so much as many of my neighbours,” he added. Nearer Chamouni, we met Zachary Cachat, who told us in the same quiet, unrepining way, that a piece of his land, purchased by the savings of several years, was gone. The magnitude and suddenness of the general disaster seemed to have overpowered the sense of individual calamity. Such floods had never occurred within the memory of living man, nor, if tradition (generally an accurate guide in such matters) could be trusted, for several generations back.

Below Argentière, the stream was swollen by the drainage of the whole of the great glacier of that name, and was consequently wider, deeper and more furious than before. The waters, in some places, were nearly a mile in width, and stretched from side to side of the valley. Groups of tall pines formed dark islands in that troubled sea, and here and there the ruins of a house, or a mill, visible above the surface of the water, showed what had lately been a human habitation. The waters had risen so suddenly, that the inhabitants had had barely time to save themselves; here and there, an article of furniture, or some household utensil, left bare by the now receding waters, showed how sudden had been that enforced exodus, and how fast the rising tide had gained upon the fugitives. We had now a most fatiguing scramble, which lasted nearly

all the way to Chamouni. It was through thick fir woods, over masses of débris, among heaps of slippery stones, piled in confusion one upon another, across wet meadow lands, up to our ancles in water, through brawling mountain torrents, and over every species of rough and tiring ground. Sometimes, we were close to the river, which roared along with fearful power, still rolling huge rocks and boulders down its bed; sometimes, we had to climb high, to get round a perpendicular wall of earth, left by the ravages of some insignificant brook, which had now torn away all the grassy slope; sometimes, to wade through, or jump across, a great foaming stream of water; sometimes, to walk along the sides of slippery inclines of at least  $60^{\circ}$ , where it required our best efforts to keep a footing. At one spot, we saw the people on the other side the stream, sixty or seventy yards off, knee-deep and thigh-deep in the freezing water, cutting down a whole wood of birch and alder, in order to save, if possible, their land. In some places, the stream was running in at least fifty different channels, the farthest of which was nearly a mile from us. Indeed, the difficulty is, to say what devastation had not been committed. Broad sheets of water were pointed out to us as the sites of clusters of chalets, which had vanished without leaving a trace behind—we saw the remains of bridges, which were now far out in the middle of the angry flood, and the ruins of every kind of building. In other places, furniture and goods had been stacked on the wet grass, in spots of comparative safety, through fear of impending destruction. One bridge alone—that opposite the Hotel Royal—at Chamouni, was left standing, and for it great fears were entertained, as much of the soil on either side

had been washed away ; including part of the garden of the hotel, and most of its baths.

We arrived at Chamouni, after five hours' hard work, wet, draggled, tired and ravenous ; for we had partaken of nothing but that one piece of black bread since seven o'clock the night before, and right glad we were to find ourselves under the shelter of the excellent Hotel Royal, and to experience the kind and hospitable attentions of M. Eisenkraemer. Having had a wash and a change of linen, we were just in time for the early table-d'hôte, after which it came on to pour again, and rained hard the whole afternoon. We had gone up to read and write in our bed-rooms ; but we were so tired, that every one of us fell fast asleep, and we never woke till nearly six o'clock. More than once, during the afternoon and evening, the alarm was given that the bridge would go ; and as a measure of precaution, two great balks of timber were stretched across the river, just above the bridge, to facilitate communication with the other side in case of the worst.

We found that the damage was not confined to the valley of Chamouni. For many miles, the road had been under water ; and vast quantities of fertile land had, in many places, been converted into a wilderness of boulders and *débris*. I met, at Chamouni, a friend from England, who had just arrived from Geneva, with some ladies. They had had a terrible journey of three days. The first day, they could get no further than Bonneville, a great part of which village was submerged. The next day had been entirely consumed in reaching Servoz, where they had had to put up with quarters hardly superior to ours of the Col de Balme. The waters were often up to the horses' bellies ; and the conductors

of the diligences, had to go first, on foot, groping their way with long poles, to avoid getting off the road into the fields. Sometimes, it had been necessary for everybody to walk. Sometimes, the diligence was held up by ropes, made fast on either hand to the top, and held by parties of men who walked beside the carriage. At one place, not far below Chamouni, it was impossible to get the carriage through at all; it had to be abandoned; and the passengers were carried through a foaming torrent, by men, and transferred to chars in waiting for them beyond. For many days, every person who left Chamouni on mule-back, for Martigny, had to go over the Col de Balme, and to begin the day by mounting to the Flegère, and descending thence to Le Tour, as the road from Chamouni to Argentière no longer existed. It was four days later when we descended to Bonneville and Geneva. The water had then nearly returned to its ordinary channel; but we saw, on various parts of the route, abundant proofs of the havoc it had wrought. Just below St. Martin, a stream which you may generally pass over dry-shod had swollen to the dimensions of a large river, and, pouring down from the mountains with irresistible fury, had snapped a whole grove of trees short off near to the ground, and covered hundreds of acres of good land with a layer of large and small stones, many inches thick. Lower down, near Cluses, large tracts of rich meadow land, by the banks of the stream, had been completely buried beneath a thick deposit of mud and grit, which was spread as evenly and smoothly as the nicest workmanship could have done it. The following year, a few blades of grass had forced their way, here and there, through the coating of earth; in 1854, there was a fair sprinkling of green, but years had elapsed before the grass

grew freely again, and the land had resumed the verdant look of former days. At Bonneville, the damage seemed to have been very great indeed. Most of the town lies low, near the banks of the river, and the water marks reached to a height of many feet above the ground. The windows of the lower story seemed almost all destroyed, and in many houses, a dark line on the wall showed that the water had risen as high as the first floor. We saw rooms on the ground floor, with a bed of mud deposited on the floor, and reaching above the window-sill. Below the bridge at Bonneville, the river must have spread out to many hundreds of yards in width; and the tops of the hedges, at some distance from the channel, were full of sticks, ends of straw, and mud left by the flood. To an agricultural community, the damage must have been enormous. Most of the crops had been got in, but not removed from the ground; and, of course, every stack or rick was swept away or destroyed. The number of cattle and sheep drowned was considerable, but not so great as might have been expected, as they are more commonly fattened on the hills and rising grounds, where cultivation is more difficult than below. It is a surprising fact, that the loss of life was extremely small. In the valley of Chamouni, not a single life was lost; nor did we hear of any person having been drowned elsewhere. This is the more remarkable, when it is considered with what extreme rapidity the waters rise in such a flood as this. The weather had been for some days extremely hot, and an unusually high temperature had prevailed to the very tops of the loftiest mountains. The consequence was, that the downfall, which is usually snow at such elevations, was now rain, even on the summit

of Mont Blanc himself. It was observed, after the rains, that so little snow had not been seen on the mountains within the memory of man. Not only had all the rain which fell over the immense area that drains into the Arve found its way to the bottom of the valley, but it had been warm enough to melt and wash down with itself a vast quantity of snow and ice from every glacier; and the consequent accumulation, and pressure upon the narrow channel, had been prodigious. Even in the little valley of the Wharfe, in Yorkshire, it is well known that, during heavy rains on the uplands amongst which it takes its origin, the rise of the waters lower down the stream is so rapid, that a person crossing by the stepping-stones at Bolton Abbey, may find the water, which was some inches below him when he began to cross, half way up to his knees before he can reach the opposite shore. This example may help us to realize the effect of some eight-and-forty hours of unbroken, heavy rain, falling over the whole area of the vast system of mountains and glaciers which drain into the Arve. The wonder is, not that so much damage was done to property, but that so little destruction of human life took place. The inundations of 1852 were a truly fearful sight, and will long be remembered with awe, not only by those with whose substance and hopes they made havoc, but by those whose lot it was to witness their terrible and destructive action.



## CHAPTER IV.

### THE NEIGHBOURHOOD OF CHAMOUNI — EXPEDITION BENEATH THE AIGUILLES OF MONT BLANC.

. . . . ὦ προβλήτες . . .  
. . . . ὦ καταρρώγες πέτραι.

SOPH.

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Beautiful View from the Charmoz—Excursion from the Montanvert to the Glacier des Bossons—Bad Guides, and Dangerous Walk beneath the Glaciers—Wild Mountain Tarn—The Pierre l'Echelle—Glacier des Bossons—Rain and Snow—The “Réglements” again—New Ground for Explorers.

THE neighbourhood of Chamouni has been more completely explored than any other district in the Alps; yet some of the most interesting points of view are rarely visited. I am greatly surprised that the guides, and others interested in adding to the number of the excursions, have not made a path to the ridge of rocks, which stretch from the base of the Aiguille de Charmoz towards the Montanvert, and form the extremity of the western bulwark of the Mer de Glace. There would be no difficulty in constructing such a path, which might be carried for some distance over the pasture grounds above the Montanvert, and afterwards across the enormous accumulations of massive débris, which have fallen,

in the course of ages, from the summit of the ridge, and lie strewn in wild confusion over thousands of acres: suggesting curious speculations as to the original elevation of the ridge of which they once were part, and which must have been sensibly lowered by the loss of material sufficient to form so vast a collection of débris. These stones would afford excellent materials for the formation of a roadway, practicable for mules; and the heights above offer one of the most striking and unique points of view to be found near Chamouni. A kind of bird's-eye view of the Mer de Glace is obtained, which gives a better idea of its general configuration, and of the disposition of the numerous moraines and dirt-bands which streak and dot its surface, than any other that I know.

I had never heard the ridge of the Charmoz much spoken of, and was quite unprepared, the first time I climbed thither, for the great extent and magnificence of the view. The upper parts of the Aiguilles Verte, du Dru, and du Moine were seen hence far better than from the Montanvert, and the prospect of the long line of Aiguilles which extend from the Charmoz to the Aiguille du Midi, with the small glaciers of Nantillon, Grépond, Blaitière, and des Pélérins, nestled at their feet, and the great Dôme de Gouté beyond, was at once novel and sublime. Nor was I less pleased with the beautiful groups of inferior mountains to the west and north-west of Mont Blanc.

“His subject-mountains their unearthly forms
Pile around him, ice and rock.”

Many a range of nameless peaks, some snow-clad, some of dark precipice and crag, some rich and grassy, rose between me and the distant horizon,

presenting a delightful variety of outline and colour.
At my feet,

"The wondrous vale
Of Chamouni stretched far below, * * *
With its dumb cataracts and streams of ice,
A motionless array of mighty waves."

It took me between two and three hours to climb to the top of the chain, and make my way back to the Montanvert. I knew that friends were waiting for me below, or I should have been tempted to pursue my way along that rough and serrated ridge, to the peak of the "Petit Charmoz," a lofty point, farther to the south, between which and the Aiguille de Charmoz is the Passage de l'Étala, by which a difficult transit may be effected from the Glacier de Charmoz on the east, to that of Nantillon on the west. The Petit Charmoz is at no great distance from the point to which I attained, and appeared to me to present no serious difficulty to a good climber. Indeed, a few days later, I heard that a gentleman, who was staying at Chamouni, had scaled it, and found, as might be expected, that it commanded a wide and magnificent prospect. The much loftier Aiguille de Charmoz, the view from the summit of which would be of extraordinary sublimity and interest, is probably inaccessible on every side. I have since been many times to the ridge of the Charmoz, and have found my sense of the grandeur of the view become stronger every time I have beheld it. It is interesting to see the Glacier des Bossons and the passage to the Grands Mulets spread out like a map before you. Last autumn (September 4th, 1857) I watched from the Charmoz the progress of two gentlemen who, with their guides, were crossing the Glacier des Bossons,

on the ascent of Mont Blanc. I could see every movement with most perfect distinctness, could perceive every check in the march, and with a small telescope could distinguish individuals. They were several miles distant, but every now and then the flashing of the ice hatchet as they gleamed in the bright sunlight, struck the eye with as much distinctness as if they had been within a hundred yards.

The chain of the Charmoz is singularly rich in Alpine flowers. There are little dells and hollows where the ground is quite dazzling from the multitude of the geums or the golden potentillas, (*p. aurea*) with which the soft herbage is spangled. Other spots again, are of a bright blue from the profusion of *myosotis alpestris*. Close to the very top, the delicately tinted *bupleurum stellatum* grows far stouter and larger than upon the Couvercle—finer, indeed, than I have ever seen it elsewhere. The *achillea macrophylla* is abundant, and its thick tufts of mingled black and white make it conspicuous among less showy flowers. Besides these, I found *veronica alpina* growing freely, *cardamine bellidifolia*, and lower down *pedicularis tuberosa* and quantities of the *rhododendron ferrugineum*, the commonest of the mountain rhododendrons.

One of the finest excursions near Chamouni, but one that is not often taken, lies along the base of the chain of Aiguilles which guard the southern frontier of Mont Blanc, from the Montanvert to the Glacier des Bossons. H. and I made it together on September 21st, 1852. We had been to the Jardin, the day before, and slept at the Montanvert. The next day, we started soon after sunrise, and climbed the grassy slopes above the Montanvert, all sparkling with the heavy dew of a fine

autumnal morning.* We rounded the extremity of the rocky ridge of the Charmoz, and ascended on the other side towards the base of the Aiguille de Charmoz and the Glacier de Nantillon.

We ought to have pursued this direction till we had reached the lateral moraine of the Glacier de Nantillon, to have traversed it and the narrow space that separates it from the Glacier de Blaitière, and then to have crossed that glacier in the same manner; but we had bad guides, who, as we had found the day before, were afraid of any glacier they were not familiar with, and unwilling to put themselves to the trouble of an additional ascent, in order to be out of the way of danger. Despite our remonstrances, they insisted upon conducting us by a route full of peril, across the vast tract of boulders and débris which cover the whole space between the Charmoz and the Glacier des Pélérins. I call this route dangerous, because, in passing beneath the small Glaciers of Nantillon and Blaitière, you are continually exposed to the fall of rocks and stones, which they discharge from their ends and sides. Situated, as they are, at the foot of a great chain of bare and precipitous heights, they both receive and discharge unusual quantities of boulders and stones, and it is consequently a piece of great imprudence to pass beneath, instead of across them. Not only did we see many marks of these dangerous missiles, on the granite boulders, whose sharp corners were freshly chipped off, in regular lines, one below another, by their recent passage, but several were discharged above our heads, while we were picking our way over the waste of débris, and passed un-

* We found the beautiful dwarf azalea (*a. procumbens*) in considerable abundance and in full flower. It is one of the most beautiful of Alpine shrubs.

pleasantly near, both before and behind us. These rolling blocks are amongst the most formidable dangers of the Alps. They descend with a suddenness and velocity which make it often difficult to discover their whereabouts till they are almost upon you; and even if you are quick enough to see them, you cannot be sure of escaping. Their track depends in a great measure upon the boulders against which they may happen to strike, and it is impossible either to calculate their course to a nicety, or to move very rapidly out of the way over a mass of broken rocks of all shapes and sizes. Prudence dictates, and an experienced mountaineer always exercises, great caution, when it is necessary to traverse a spot exposed to this kind of danger; and it is always better to incur some additional trouble and fatigue, than to risk a serious accident by getting into such situations, when they can be avoided.

After passing under the Glacier de Blaitière, we ascended for some distance, and came upon a beautiful mountain tarn, full of dark blue water, clear as crystal, cold as ice and motionless as marble. It was very beautiful to see the sombre crags of the Aiguille de Blaitière, streaked here and there with snow, mirrored in its tranquil bosom.* From this point, we climbed rapidly for some time up a great mountain of débris and rock; and pushing westwards came shortly to the Glacier des Pélérins. This glacier extends so much lower than the rest, that it would be difficult and very laborious to pass beneath it and remount along the further side: our guides,

* Just beneath this lake is a spot called Le Plan des Aiguilles, to which an excellent mule path has been made from Chamouni. Of all the expeditions which may be made on mule-back from Chamouni, there is not one which will better repay the visitor than that to the Plan des Aiguilles.

therefore, despite their dislike to the ice, were obliged to cross it—a matter of not the least difficulty, as it is very slightly crevassed. This brought us to the base of the Aiguille du Midi, where a scramble of extreme steepness and some little difficulty awaited us before we could reach the Glacier des Bossons, which, at a distance of many hundred feet below, streamed down towards the vale of Chamouni in a confused cataract of torn and jagged fragments of ice.

We got to the glacier about half-past ten, and sat down for a few minutes to take some lunch; after which, we mounted again by the side of the glacier, following the track ordinarily taken in the ascent of Mont Blanc, and in a few minutes reached the Pierre l'Echelle, where we found a collection of ladders, left by travellers who had made that grand and exciting expedition. Our wish was, to cross the Glacier des Bossons, and, if possible, to reach the Grands Mulets; and we were surprised to find that our guides, generally so reluctant to face the ice, warmly seconded us, enlarging upon every topic that could whet our desire to visit them. We accordingly entered upon the glacier, whose crevasses we found to be on a truly gigantic scale. I think, though not really larger, they give one a greater idea of vastness and depth than even those of the Col du Géant, which are so thick-set, as to lose in appearance something of their actual magnitude. In this glacier, the intervening blocks of ice are more massive, and the crevasses less frequent. Parts of the passage, however, are difficult enough and require considerable care. We saw the crevasses at their widest, as it was very near the end of the season, which finally broke up a very few days later.

Some drops of rain had fallen before we arrived

at the Pierre l'Echelle, and by the time we had extricated ourselves from the maze of crevasses into which the side of the glacier is broken, and had gained the compacter ice in the middle, where our progress was more easy and rapid, it came on to rain and snow fast, and a huge volume of dense rolling mist filled up the lower end of the valley of Chamouni, and was slowly advancing, borne upon the west wind, which blew sharply in our faces. It was hopeless and useless to continue, in such weather, and much to the regret of ourselves and apparently of our guides also, we were compelled to turn our backs upon the Grands Mulets, and make the best of our way towards Chamouni. We should have found a ladder useful enough, in retracing our steps through the labyrinth of crevasses, where the ice was rendered very slippery by the rain. However, we reached the Pierre l'Echelle without accident, about half-past twelve, from which point all was plain sailing. It was raining very hard, and there was no temptation to loiter on the way. I imagine no party returning from the summit ever came so quickly down the steep and narrow track, dignified by the name of the "Chemin du Mont Blanc." In an hour after leaving the glacier, we came to an unoccupied chalet, where we took shelter for a quarter of an hour, as there was a momentary break in the clouds, and we were loth to finish our day's work so early. It proved, however, a deceptive gleam of light, and there was nothing for it, but to return to Chamouni as fast as we could. We slid for yards together over the wet and spongy turf, which was so slippery that we rolled over, now one, now another, a dozen times in the course of the descent.

The Cascade des Pélérins was in fine condition

after the recent rains.* It was the last time I was to see it in its glory; for, during the following autumn, the torrent, being swollen by heavy rains, carried away bodily the great boulder, which had been lodged in the basin beneath the fall, and had caused the water to leap upwards in an arch from the basin into which it tumbled; and thus the curious and characteristic aspect of the waterfall was destroyed. We reached Chamouni, wet to the skin, at a quarter to three, less than two hours and a half after quitting the Pierre l'Echelle, and had to go to bed while our clothes were being dried.

When we came to settle with our guides, in the evening, we learned the secret of their ardent desire to take us to the Grands Mulets. They demanded for the day's "course" what we considered an exorbitant sum; and, on our remonstrating, told us we ought to consider ourselves well off, as, if we had succeeded in reaching the Grands Mulets, we should have had to pay them forty francs a-piece. I thought, at the time, this was only idle talk; but I learned subsequently that they could really have enforced the demand. The hope of forty francs had overcome the fear of the glaciers; and their importunity was no longer a mystery. Of course, it would have been a dishonest proceeding on their part, to lead us into such an expense, without warning; but Balmat, whom I subsequently consulted, appeared to be of opinion that the *réglements* would have borne them out.

For the passage along the base of the Aiguilles, two guides were wholly unnecessary. Indeed, a person tolerably familiar with the mountains would have no difficulty in finding the way for himself; and

* It was only three or four days after the great inundations which form the subject of the last chapter.

it is only a question of finding the way. A very moderate degree of sagacity and experience would enable him to avoid the only real danger attending the expedition; that, namely, which we underwent, from the rolling blocks discharged by the glaciers. I would much rather take the excursion by myself, than with such guides as we had, who were of no use, where skill, courage and local knowledge were needed, and only served to tire us with their boastful accounts of what they, their fathers and uncles had achieved, in the ice-world, and chasing the chamois. A really good guide is a companion of a very different sort, and, even when not possessed of the refinement and intelligence of Balmat, can still give much useful and interesting information as to the surrounding scenes and phenomena, and will often save you much, both in time and trouble, by pointing out the route which his local experience informs him is the shortest and best. In 1852, when H. and I travelled together, and made some of the excursions which are recorded in this volume, I was comparatively fresh to the higher regions of the Alps, as, though I had twice visited Switzerland before, I had not deviated much from the beaten track, or often sought the glaciers and the mountain-tops, and, therefore, we were far more dependent upon guides, and upon the information of interested persons than I have been on subsequent tours; and I did not then know Balmat, (whose acquaintance I made in London, a few months later) upon whose high character, disinterested kindness, and thorough knowledge of the High Alps, I can now always implicitly rely, where my own judgment or experience is at fault.

A great part of the Mont Blanc district has been so thoroughly explored, that comparatively few new excursions are to be suggested. The glaciers of

Argentière and Trient, however, still offer an almost untried field of research ; but from the closeness with which they are hemmed in by their guardian aiguilles, I doubt if they will ever afford passages as interesting as that of the Col du Géant. Professor Forbes crossed the Col which separates the Glacier du Tour from that of Salena, in 1850, and gives a very interesting account of his journey in a chapter appended to his "Norway and its Glaciers;" I made the expedition last year (1857), but prefer, on the whole, the Col du Géant to the passage of Le Tour.

In exploring these glaciers, you have the great advantage of tolerable accommodation at the Col de Balme, and thus being able to start from a height of seven or eight thousand feet. The other extremity of the Mont Blanc range yet remains a *terra incognita* ; but it would require a bold mountaineer to scale the tremendous heights which surround the glaciers of Bionnassay and Miage. Balmat thinks a passage might be forced across the chain, ascending by the glacier of Bionnassay, and descending into the Allée Blanche by that of Miage. It would, undoubtedly, be very difficult, but would probably be scarcely inferior to the Col du Géant, and I hope it may some day be attempted and achieved.

CHAPTER V.

PASS OF THE MONTE MORO.

But yonder comes the powerful king of day,
Rejoicing in the east. The lessening cloud,
The kindling azure, and the mountain's brow
Illum'd with fluid gold, his near approach
Betoken glad. THOMSON.

La Burca—Marmot for Supper—A Rainy Day—Mending Stockings—Sunrise upon Monte Rosa—The Monte Moro—A Glissade—Arrival at Saas—Remarks—Botany.

HAVING walked over the Simplon,* and passed an uncomfortable night at Domo d'Ossola, we started off up the beautiful Val Anzasca, rich with woods that afford a grateful shelter from the fiery rays of the

* I cannot forbear mentioning how much those persons gain, whose inclination or necessities lead them to walk instead of riding, over this sublime and beautiful pass. Those who are alive to the minuter beauties of nature, and who can bestow an occasional thought on the exquisite flora of the Alps, will find a rich treat in the luxuriant and varied vegetation which clothes the banks above the road, especially on the Italian side. It would be out of place to attempt to enumerate here the flora of the Simplon; but in no other place have I seen the true maiden-hair fern (*adiantum capillus veneris*) growing so freely and beautifully. In places, the banks are purple with the delicate *cyclamen europæum*.

sun, green with grassy slopes, and vocal* with the cheerful music of the cicada and the grasshopper, and arrived, after a long and sultry day, on the evening of September 5th, 1852, at the little inn of La Burca, half-an-hour's walk below Macugnaga. It was then—I believe it has been modernized lately—a little, old-fashioned cottage, with a public room on one side of the doorway, and on the other an apartment which served the family, of three men and three or four women and a stray child or two, “for parlour and kitchen and all,” and one or two bed-rooms in the low, sloping thatched roof, to which you climbed by a sort of ladder. What became of the numerous family at night passed our skill to discover. Homely in the extreme, the place had yet an air of cheerfulness and comfort, which made us very glad to put up there for the night, and we were still better pleased to find the testimony in the travellers' book uniform and hearty as to the care, attention and kindness of the host, the cleanliness of the beds, and the excellence of the cuisine. It turned out that “I Cacciatori del Monte Rosa” was kept by two brothers, one of whom was a crack hunter†, and the other an accomplished cook—a most promising association. We found a marmot hanging in the larder, and with some difficulty prevailed on the brothers to let us have him cooked for supper. They

* οὐδ' αὖ θερμὴ πνίγους ἡμᾶς
 ἀκτὶς τηλαυγῆς θάλλπει
 ἀλλ' ἀνθηρῶν λειμώνων
 φύλλων ἐν κόλποις ναίω,
 ἡνίκ' ἂν ὁ θεσπέσιος ὄξυ μέλος ἀχέτας
 θάλλπει μεσημβρινοῖς ἡλιομανῆς βοᾷ.

AR. AV. 1091-6.

† The mountains opposite to La Burca abound in game. The hunting brother told us he had once killed there four chamois in an hour.

spoke of it rather slightly as "*comme cela*," "*pour les chasseurs pas mauvais*," and so forth, but seemed to think it not good enough to offer to travellers. However, it came up most delicately cooked, and was unanimously voted excellent; and it was followed by real chamois, and coffee as good as could be had in Paris, and by a luxury rare in the Alps, good bread and sweet butter.

The next day, we were to have been off at four or five o'clock, to cross the Monte Moro; but it poured all the night long, and when we rose at seven, the rain was still coming down hopelessly, and we had nothing for it but to make ourselves as happy as we could in-doors for the day. We had not a book amongst us, nor was there one in the house;* so that it was rather a severe test. All the journals were brought down to the most recent date, and the proceedings of yesterday described with unusual minuteness. Then we had long chats with the host, who spoke a strange patois, which seemed like broken French and Italian, chiefly about the weather and the chase, in which we were joined by a very intelligent Italian gentleman, who had come up with a fine dog from the shores of the Lago Maggiore, to hunt the chamois. He had been the proprietor of a large estate near Milan; but being active in the

* Not even the "*Musée des Familles*," a French illustrated magazine, which they had lent me a few days before at Sonceboz, where I was kept to the house for some days by a blistered heel. In this veracious publication, were a set of papers entitled, "*Les Anglais chez eux*," from which I learned not a few facts about my native land and my countrymen, of which I was ignorant before: for instance, that Cremorne was a great place of resort for Evangelical clergymen, and for substantial shopkeepers; that the way from Portland Place to Kensington Gardens lies through Devonshire; and that Coventry is in the immediate vicinity of the Haymarket. I have only to add, that the editor assures his readers, that the accuracy of the information contained in these papers may be implicitly relied upon.

events of 1848, was one of those who were excepted from the general amnesty which followed the suppression of the outbreak, and was, consequently, an exile from his home and country, towards which he yearned with all the proverbial ardour of an exile's longing. Then we had a protracted chaffer for a magnificent specimen of iron pyrites, from the mines of Pestarena, which one of our party hankered after sadly, but could not screw his courage up to forty francs, which was the lowest price our host would take for it. After this, my companions were very hard up for employment, and, therefore, paid great attention to the cuisine; the remaining half of the marmot was grilled for dinner under their inspection; and they assured themselves of the genuineness of the chamois, by an examination of the skin, which had been but very recently taken off. They would, I have no doubt, have given a good deal for some large holes in their stockings, such as gave me employment, for some hours, in darning them. The ladies affected to make very light of the achievement, when I returned home, and found several technical flaws in my work; but we all considered them *chefs-d'œuvre*; and I know that my darning stood the test of a month's hard work afterwards.

I had been making a collection of wild flowers, as I passed through the country; and the arrangement and of securing those which were lying loose among the pages of my book afforded occupation for an hour or two more. It was very amusing to notice the interest and curiosity which this proceeding always excited, especially with the women. Each of the three who belonged to 'I Cacciatori,' came in turn, and at length all came together, and brought a little girl with them, to watch what was going on; and the child was carefully put in a good place, as would

be done at a show. At Vanzone, where we had dined the day before, I was occupying a few spare moments in this way, when the woman of the inn, after expressing considerable admiration, went out, and brought me several large dahlias. Finding them too large for my pocket-book, she went out again, and brought me some rue, camomile, fennel and several other garden herbs, that I might add them to my collection; and in order to avoid giving her bitter disappointment, I was obliged to carry them with me, till I got out of sight of the house.

About six o'clock in the evening, the heavy rain ceased, and the clouds began to clear away; and soon we had glimpses of the nearer peaks, and then of the glaciers of Monte Rosa, at the upper end of the valley; and as the sunlight faded away, the stars began to sparkle in the sky, the wind set in from the north, blowing very cold, and we were informed that there was every prospect of a fine day for the morrow. We, therefore, went early to bed, where we soon forgot the ennui of the day, and made the best use of our time, till half past three the next morning, when we awoke to find our hopes realized, and the stars shining brilliantly in a clear and frosty sky. We made a hasty toilette and an excellent breakfast, which our untiring landlord prepared with a care and delicacy that smacked little of an hour before day-break.

When we started, a little before five,* the grey tints of early dawn were upon the mountain tops, whose outline seemed rather to fade away into the cold blue sky, than to be chiselled out in sharp relief against it. In the east, however, the sky was already of the pale yellowish grey which marks the approaching sunrise. The view up the valley, towards Monte Rosa, was of great magnificence. On our left, was a

* The track is marked on the map at p. 106.

dark mountain of no great height, clad with wood half way up, with a rocky peak above; but beyond that lay the glaciers and snows, the crags and precipices of Monte Rosa, gradually coming more and more completely into sight, as we drew nearer to the head of the valley.* Immediately in front was the steep and dangerous passage of the Weiss Thor, whose highest part could not be less than six or seven thousand feet above us; lying to the right of a lofty and rugged peak, called the Cima de Jazzi, and communicating directly with another called the Rothhorn; just below and to the right of which, was the pass of the Monte Moro, towards which we were about to ascend.

The new snow had fallen on the mountains, and the vast basin of the Monte Rosa chain lay before us, clothed in flowing robes of the most pure and spotless snow; while every little nook and ledge and inequality of rock, on which the snow could rest, was covered with the same virgin white; so that it looked as if the sides of the craggy mountains were flecked and dashed with spray, and as if myriads of foaming torrents were coursing down the precipices, streaking the surface with their white tracks in every direction. After we turned to the right, and began the ascent, the light became stronger, and the outline sharper, and our view of the vast glacier basin more uninterrupted and clear. The valley of Macugnaga goes very far into the heart of the mountain, so that all the snowy part of Monte Rosa rises in one great mass directly above it. For two or three minutes—not more—all the upper part of this vast region of snow was dyed of the deepest crimson, (not pink, as an evening view of the Alps often is); then, for

* The actual summit of Monte Rosa does not become visible till some little time after leaving La Burca.

much longer, it was of the most brilliant gold—just the colour of a new sovereign—and then, as the sun over-topped the lower mountains, and their shadows were no longer thrown upwards, this gorgeous colouring gave place to a dazzling glare. Miles off as we were, we could hardly look at the snowy basin without blinking.

The ascent of the Monte Moro, on this side, is particularly steep; but it presents neither difficulty nor danger; and if you once get an accurate idea of where you are to cross the chain, there would be no difficulty in finding the way without a guide. It was once a mule track, and every here and there, you come upon bits of the old paving; but, generally, it is a rough climb; often, like going up stairs; and you continually encounter small sloping faces of rock, very smooth and slippery, which protrude from the turf, and over which a little care is needed. The pasturages are rich: the vegetation luxuriant, and the bilberries singularly fine—some are quite as large as small grapes. The cloudberry* (*rubus chamaemorus*) is also found; its juicy red berries are a welcome refreshment on a hot day. These fruits and the berries of the juniper, afford excellent food for the pheasant, the grouse and the black cock, which are abundant here, as well as hares, ptarmigan and white partridges. As we ascended higher, the track became a mere scramble over blocks of stone of all shapes and sizes, till, about half-past eight, we arrived at the snow, which lies in a great, steep, smooth slope, hanging like a curtain from the summit of the pass. It is not till you get very nearly to the edge of the snow, that you see exactly where you are to cross; hence it is desirable to get a good notion of the direction, before beginning the ascent. Some

* See, as to this plant, a note in Chapter XI.

five-and-twenty minutes of very laborious climbing, up to our knees in snow, with an occasional slip and tumble, brought us to the top of the ridge. The mists had risen from the valleys, and shut out most of Monte Rosa, and prevented our seeing far in any direction; but the smooth sheets of snow stretching down from every height near us, and scarcely broken by a crevasse or a rock, were very beautiful indeed. Twenty minutes of descent brought us to a steep bank of hard snow, terminating at the foot of a fine glacier on our right, slightly marked by a series of concentric curved crevasses. Here we all set off for a glissade, in the course of which one of us had a trip, and executed the manœuvre described by Mr. Albert Smith as not uncommon under such circumstances, ending in a long roll; whereupon, another consulted safety rather than elegance, by squatting down, with his alpenstock between his legs, and accomplished the descent in that fashion, presenting an appearance which reminded me of an impaled frog.

A gentle descent, by a rough path, for about an hour and half, passing two fine glaciers* on the left, and across the Distel Alp pastures (following the course of the stream, which issues from the glacier not far from where our glissade ended) brought us to a lake, a mile and a half long, called the Mattmarksee, caused by the descent of the Allelein glacier, which

* One of these has evidently stretched, at some time, quite across the valley, as the Allelein glacier does, lower down. The largest mass it has brought down is a gigantic block of serpentine, sixty or seventy feet high, which it has deposited on the right of the stream. Probably the valley was once blocked up by this glacier, as it still is by the Allelein; for the valley is here wider than usual, and there is a little plain, above where the glacier must have crossed the valley, probably composed of the alluvial deposits of the stream.

comes pouring down from the left, and completely chokes up the valley of Saas for nearly a mile more. The stream burrows a subglacial course for all this distance, and issues forth again at the foot of the Allelein glacier.* We climbed up this glacier a little way, and looked down some huge dark blue and green crevasses. The scene is one of singular sterility, whichever way one looks—brown and barren crags on every hand, surmounted by great glaciers, leave room for only a narrow strip of pasture ground, clothed with a scanty and stunted herbage.

Having passed the glacier, we continued to descend by a rugged and uncomfortable path, for a considerable distance, till the valley opened out to three or four times its usual breadth; and before us, in a little plain, less than a mile wide, but of very rich and productive pasture ground, lay the secluded village of Saas. Here we sought the Hotel du Mont Rose, the residence of the curé of Saas, a famous mountaineer, to whom, as I shall have occasion to mention hereafter, I am indebted for some of the grandest excursions I have ever taken.

The Monte Moro may in strictness be called a glacier pass; but it does not at all answer to what we generally think of as such; for it is remarkably easy, and the passage over the glacier does not occupy more than three quarters of an hour, and is practicable at almost all seasons, and in almost all weathers. Nevertheless, the scenery, especially on the Italian side, is of extraordinary beauty and grandeur, and it is justly becoming every year a more and more favourite excursion. It is seen to the best advantage, in crossing from Saas, as you then have the glorious view of Monte Rosa in front of you,

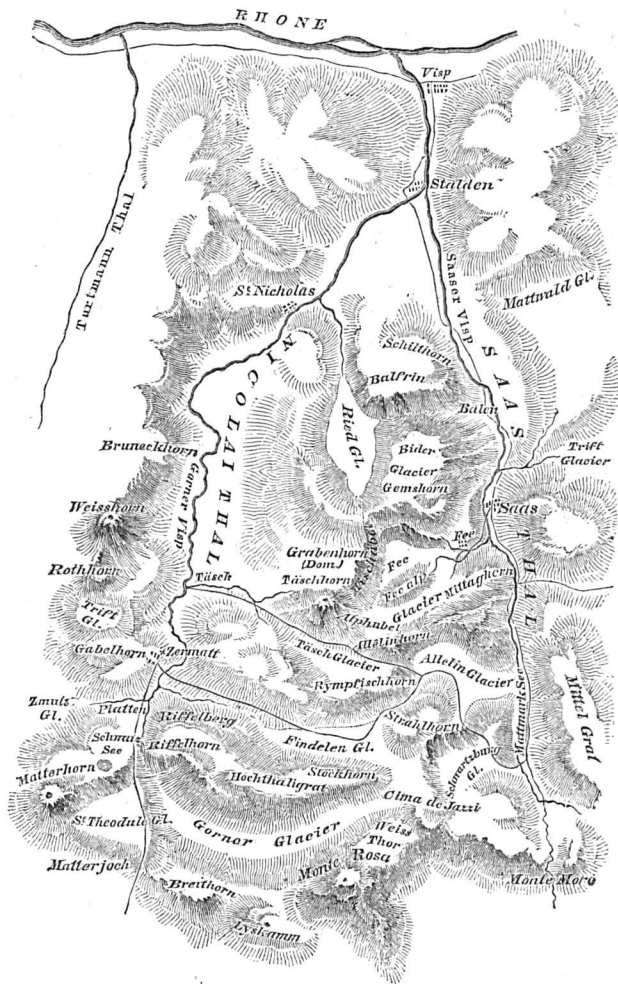
* I shall have occasion to mention some facts relating to this glacier in a later chapter.

during the greater part of the descent. Great efforts are being made to re-construct, and render available, the ancient pathway, and there has been some idea of rendering it once more practicable for mules the whole way. If this be effected—and there is no reason why it should not be effected—there will be nothing to prevent ladies from making the pass. At present, only those of the fair sex who do not mind a good deal of rough work, and can stand considerable fatigue, have been able to enjoy the beauties of this most attractive pass. A decent inn has been built at the head of the Mattmarksee, and the accommodation in the valleys of Saas and Anzasca, has been gradually improving for some years. I paid visits to Saas in three successive years, 1852-3-4, and observed a most marked improvement, each year over the last, and I believe the progression is still carried on—so that, after the mule-track is put into repair, there will be nothing to prevent thousands from crossing the Monte Moro, who, three or four years back, could not have thought of it. The journey from Macugnaga to Saas may be performed easily in ten hours; it took us less—and we loitered very much during the latter half of our journey, looking about us, searching for flowers and the like.

In the Val Anzasca, we found many specimens of the frail *impatiens noli me tangere*, a plant which I have but rarely met with in the Swiss valleys. The class of plants found here, indicated a climate much warmer than that in the northern valleys of the High Alps. They were much the same as those we had seen in the valley of the Rhone, *e.g.* *cyclamen*, *dianthus Carthusianorum*, *cytissus nigricans*, *colchicum*. Higher up, soon after leaving La Burca, we found *senecio incanus*, Linn., (*Jacobaea alpina pumila*, Bocc.) and *dianthus Monspessulanus* (Montpelier

pink), and, near the top of the pass, the beautiful waving *agrostis vivipara*, one of the most graceful of mountain grasses, *silene acaulis*, (stemless fly-catcher), *sempervivum arachnoideum*, and, of course, great quantities of *salix herbacea*, the food of the chamois in these elevated regions; and, lastly, the *ranunculus glacialis*, blooming on the very confines of eternal snow. On the Swiss side of the pass, we found little to attract attention till we had nearly reached the Mattmarksee. Some of the flowers of the valley of Saas will be noticed in the following chapter.

Note.—There is an error in the map upon the next page, with respect to the position of the Weiss Thor, which lies on the further side of the Cima de Jazzi from Monte Rosa, and not between Monte Rosa and the Cima. The map is reduced from Studer's map, which is generally very correct, but I am told by my friend Mr. Hinchliff, who is familiar with the Monte Rosa district, that there is no known passage between Monte Rosa and the Cima, and that in all probability none exists; and I remember now, that Herr Imseng made the same remark to me, when he first showed me the map.



CHAPTER VI.

THE VALLEY OF SAAS AND THE VALLEY OF FÉE.

A little lowly vale,
A lowly vale, and yet uplifted high
Among the mountains;

Full many a spot
Of hidden beauty have I chanced to espy,
Among the mountains; never one like this;
So lonesome and so perfectly secure;
Not melancholy—no, for it is green,
And bright and fertile; furnished in itself
With the few needful things that life requires.
In rugged arms how softly does it lie!
How tenderly protected!

WORDSWORTH.

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From Visp to Stalden—Sudden arrival of Autumn—Butterflies—  
Sour Bread and Garlic—Stalden to Saas—Change of Climate—  
Avalanches and Assassins—Saas—The Inn—A model Kitchen  
—The Curé—Valley of Fée—Annual Fête—A “ Strapping Wo-  
man”—Fee-Gletscher-Alp—Advance of the Glaciers—Flora of  
the Fee-Alp—La Tête—Glacier of Fée—Ancient Glaciers—The  
Balfrin—Crossing the Bider Glacier under difficulties—Dange-  
rous Descent—The Allelein Glacier.

THE valley of Saas is one of the most beautiful in  
the Alps; but until very lately has been scarcely  
known to the mass of Swiss travellers. It extends  
nearly due south, from Visp in the valley of the  
Rhône to the foot of the Monte Moro pass, a distance



of about nine or ten hours' walk. At Stalden, about two hours' walk above Visp, the valley forks off into two branches; or rather, two valleys, that of St. Nicholas on the right, and that of Saas on the left, unite, and pour their streams into the same channel. The torrent in each valley bears the name of the Visp; but that which issues from the valley on the right, is called the Gorner Visp, from the great glacier of that name at whose foot it takes its rise, while the stream which flows down the valley on the left is called, from the principal village in the valley, the Saaser Visp.

From the town of Visp to Stalden, the road rises very gently along the right bank of the Visp stream, which it crosses, about an hour from Visp, by a curious high-pitched bridge of great antiquity, and consisting of a single semi-circular arch. The valley is wide on the eastern side, though kept within narrow bounds by the mountain ridge on the left bank of the stream. It is, like the valley of the Rhone, rich in vines, apples, pears, plums and all manner of fruits; the vineyards, especially, extending to a great height up the mountain sides, and being elaborately terraced on the steepest slopes. Close to Visp, on the western side of the valley, some of the vineyards are carried up to an astonishing height, and are said to produce a very choice wine. I have never passed through Visp at the wine-drinking period of the day, and have, therefore, never tested its quality; and, indeed, if it be very good, the probability is, that it would be taken to Sion, or some other place in the more populous part of the valley of the Rhone. Near Stalden, a grape is grown which yields a peculiarly strong and luscious wine. Indeed, I know few continental wines which possess equal strength. It is a light-coloured wine with

what the guides call "un goût de Muscat;" but it is very insidious, and I have known several instances of persons, who had not been cautioned as to its strength, drinking it freely, as they might safely drink most of the Swiss wines, and being completely overcome by it.

In the height of the season, the profusion of wild flowers must be something wonderful. I have never passed through this part of the valley earlier than quite the end of August, when by far the greater part of the flowers were in seed; but, even then, there were enough to make the valley look very gay in places: below Stalden, they were much the same as we found in the valley of the Rhone. A few days, at this period of the year, make a wonderful difference in the aspect of vegetation. In 1853, I walked from Visp to Stalden, on the 27th of August, and from Stalden to Visp on the 1st of September, and the difference was most marked. Many of the trees which had seemed in pretty full leaf on the Saturday, were almost stripped, by the Thursday. In descending the valley, the fallen leaves rustled under our feet, as they would in November, in England, and the wild flowers had all but disappeared. The early fall of the leaves in these hot valleys strikes the traveller as much as any of their autumnal characteristics. I walked from Piedimulera to La Burca, up the luxuriant and sultry Val Anzasca, on the 5th of September, 1852. It is the richest valley I ever saw; but also one of the hottest; we were glad to build about our caps thick shades of chesnut leaves and ferns; but some of the trees were as bare as they would be two or three months later, at home. Indeed, I have seen the trees in far fuller leaf in December, at Malvern, than they were, here, in September. The heat, all the while, was almost tropical.

The valley of the Visp presents every sign of a hot climate; lizards running on the stones and walls; and butterflies fluttering about in great numbers. The grasshoppers make the whole air vocal with their shrill and cheerful chirrup. In August, 1853, I saw few but the red-winged variety. I have, however, on other occasions, seen hundreds of a different colour, both blue and brown. The commonest butterfly was the little pale blue one; but there were some larger yellow butterflies, of a delicate hue and exquisite beauty. The Apollo is likewise plentiful, and attains an unusual size. Few of the less rare kinds equal the Apollo in brilliancy and beauty. One, however, that we saw in 1853, was the finest insect of his tribe I ever saw alive. He was full four inches across, of a very rich dark brown, delicately blended with a lighter brown, soft and velvety, spotted with black, and fringed with a broad band of deep black, and then a narrow band of light brown. His wings were deeply serrated and indented. I never felt my destructive propensities so strong, and the animal certainly would not have rested so quietly, while I was looking at him, if he had known the struggle that was going on within me. But I was ashamed, for the gratification of a mere fancy, and having no scientific interest to serve, to mar so beautiful a creature.

At Stalden, there is a little inn, where a tolerable lunch may sometimes be obtained. The wine, as has been said, is very good; in fact, it proves now and then too good; cheese may also generally be had of a pretty good quality, and the honey is excellent. The bread is not to be relied upon; I *have* eaten good, wholesome bread at Stalden, but it is generally very acid. A very few years back, the difficulty of meeting with any tolerably wholesome

food in these valleys was a most serious drawback to the pleasure of visiting them.\* The bread was almost uniformly sour (it is still very often so), the cooking infamous, so that what might have been a wholesome stew or roast, came up oily, reeking with garlic and other abominations; and, in fact, it was very difficult to know where to turn for a meal that could be eaten with impunity, even among the mountains. I shall have occasion to mention the style of cooking more particularly, when I come to speak of Saas. Things are rapidly mending in this respect, but in 1854 there was still much room for improvement; and the extent to which garlic was used, in the preparation of all sorts of food, can hardly be conceived by the uninitiated. I imagine they must have fed their fowls upon the noisome herb; for I have found even the boiled eggs taste of garlic, at Stalden. Nothing was commoner than for everything with which garlic was not purposely mixed by the cook, to have been cut with a garlicky knife. I have often found the slices of bread at Saas quite uneatable from this odious practice; and the natives are so much in the habit of eating garlic, on every possible occasion, that they are quite unable to understand that it can be disagreeable to a traveller. These valleys, however, are becoming so

\* I have known many persons made thoroughly unwell, after two or three days in the valley of Saas, by the sour bread and unwholesome diet. The friend who was with me in 1853 was knocked up at the foot of the Allelein glacier, in consequence of the bad food, and the same cause brought on a serious attack of illness, in the case of my wife, the next year. I have been told by a friend, that an East Indian officer he met in Switzerland informed him that it was the practice in India, in such a case, to cut the bread in slices, soak it for a few minutes in milk, and then rebake or toast it; the alkali of the milk corrects, to a great extent, the acidity of the bread. My friend tried the suggestion, and found it answer.

much more visited than they were a few years ago, that I have little doubt that, before long, all these little discomforts will have been remedied. Already, at Zermatt, you may live almost as well as at Chamonix; and I have been told that there is now little to complain of, at Saas.

After quitting Stalden, to ascend the valley of Saas, you cross a fine bridge over the Gorner Visp, which thunders through a narrow, rocky channel, some two hundred feet below, and leaving the valley of St. Nicholas, and the path which leads to Zermatt, on your right, enter a much wilder and more contracted valley. The path is carried at a considerable height above the stream, along the side of the steep and lofty range of mountains which forms the western boundary of the valley of Saas. In the afternoon of a sultry day, the change is most grateful, from the exposed and sultry valley below, to the welcome shade afforded by this gigantic barrier. It is curious to notice the rapid change, both in animal and vegetable life, which shows at once that the conditions of climate are totally different here and a few miles below. The flies cease to plague you and to torment the mules; the butterflies and moths are few and far between; the grasshopper is not rattling forth his cheerful note from every tree and blade of grass. The herbage is greener and fresher—the pasturage excellent; many of the wild flowers are still luxuriant and beautiful, but, both in number and variety, they fall far short of what we have seen below.\* It is a moist valley, evi-

\* The plants of a colder climate begin to show themselves. The prevalent varieties of common plants are the Alpine ones; e.g. *linaria alpina* and *trifolium alpinum*. The hardier kinds of *gentian* and *myosotis* appear; *campanula glomerata* is found, and above Saas, *saxifraga crustata*, *sempervivum arachnoideum* and *silene acaulis*.

dently, for the cotton-grass (*eriphorum capitatum*) and the *parnassia palustris* are growing everywhere with remarkable richness and profusion.\* There are still a few cherry trees, and here and there a walnut tree; but they soon give way to the larch, the fir and the pine.† The size of the pine in the valley of Saas is remarkable.

The walk from Stalden to Saas occupies about four hours, and is one of the most beautiful I know. The scenery is all close, being confined to the sides of the valley; but these are very fine. They are steep and precipitous, especially on the eastern side; and the river runs through a channel, which, for a great distance, is nothing but a cleft in the rock, of considerable depth, arching upwards, as if its two sides would meet, and generally marked with great black ribs, the stains of dripping water and vegetable growth, which assume an extraordinary appearance of regularity, looking, in many places, like courses of masonry. The mountains rise to a great height, on either side, and there is so agreeable a variety of bare grey, and light brown rock, of rich green grass, of moss-grown crags and of steep slopes dotted with fir and larch and pine, that some new scene of beauty is presented at every turn of the path. The rocks are chiefly of gneiss, with bands of steatite, and, lower down, some limestone; but the latter rock is not abundant. As you get higher up the valley, it is even more wild and beautiful, for a vast collection of boulders, now clothed with lichen, moss, and turf, have been rolled down by the stream, or have tumbled from

\* εὐδρόσους γῆς τόπους  
ἔχεισι, λιμῶνα τ' ἐροίντα.

† Many of the trees of this class are beautifully fringed with the parasitic lichen *pinastri*.

the mountain side, amongst which the path gracefully winds its sinuous way.

It is a dangerous valley in winter, for the sides of the mountains are steep enough to give rise to frequent avalanches; and many a cross by the side of the track marks the spot where some unhappy wayfarer, in attempting to pass from one part of the valley to another, has met his death, and found his grave beneath the snow. Not a few of these humble monuments are said to commemorate a still darker and more tragic fate; for, in former days, these valleys had an evil reputation, and are said to have been inhabited by a treacherous and ferocious race, who could, on occasion, ply the trade of the assassin, as well as tend sheep on the mountains; and the guides are apt to say, whether truly or not, that in those days, the knife of the murderer was not unfrequently as deadly as the fall of the avalanche. Such a state of things, if it ever existed, has long since passed away: and the present inhabitants, though grossly ignorant, are a kind and simple race, generous and affectionate, rather than cowardly and cruel.

In one place, the valley widens, and a village is situated in a little plain, of exquisite loveliness, carpeted with herbage of the darkest and richest green. Then you pass, for nearly another hour, through a thick wood of firs and larches, through the openings in which you have an excellent view of a glacier which hangs far down the opposite side of the valley, and, at length, emerge upon another, broader and longer, plain, at the upper end of which the tower of the church of Saas sparkles in the sunlight; and behind are seen some fine snow-clad mountains, which lie between the valley of Saas and the Simplon; and to the right of these, a long

range of crags, their heads just powdered with snow, which form the southern boundary of the rich little valley of Fée.

The village of Saas used formerly to boast two inns; but when I was last there, in 1854, the Hotel du Mont Rose had monopolized the traffic, and the rival house had ceased to exist. At the Hotel du Mont Rose resides the curé, Herr Johann Imseng, (a notable personage in these parts) who, in fact, acts as host. He knows the mountains of the district better than any man in the valley; and, although far on the wrong side of sixty, can still walk for four-and-twenty hours at a stretch, and make light of the achievement. There is no inn I know, in which so great an improvement has taken place in a short time, as in the Hotel du Mont Rose. When I first went there, in 1852, the fleas were intolerable. Their size, and the fierceness of their appetite, exceeded anything of the kind I ever knew; and when a cold or wet day drove one near the fire, their attacks became unendurable; and there was nothing for it, but to retire, and have a grand hunt, when we always found. In 1853 and 1854, I observed a great and successive diminution of their numbers; and a friend, who was there with his wife, in 1855, told me there was none.

The cuisine is likewise greatly improved, though, on my last visit, in 1854, the only day that we escaped the plague of garlic was a day when they apologised for the absence of the cook, who was gone to act as guide over the mountains. We found great cause to rue his safe return. But I am told the change for the better in this respect has been considerable, since that time. In 1852, we found that they had never heard of an "omelette aux confitures." We attempted to teach them how to make one, and got an



ingenious compound between bad batter pudding and apple fritters. They have since learned how to manufacture very tolerable omelettes. The cooking and all the arrangements are far cleaner than they were—as they well needed to be. During my first visit, we spent a very wet afternoon in the kitchen, for the sake of the fire. There was no grate, or kitchen range, but the fire was heaped on a brick settle in the corner; and the chimney was a sort of wooden funnel above, which of course smoked fearfully. Damp wood formed the staple fuel; and the consequence was, that nearly everything which was boiled over the fire, had a taste of smoke. The tea and coffee were always highly smoked. At one end of the kitchen, were a lot of bits of wood for the fire, piled up. By this heap, was a sort of sink, on which were broken egg-shells, wash-hand basons, jugs, offal, plates, bread, sugar, cheese, knives, forks, dishes, remnants of soup, scraps of meat, unwashed crocks of all sorts; then in the window-sill, which was very small and dirty, were some joints of scraggy mutton, lying in the dirt, cheek by jowl with filthy rags and cloths; on the table was a confused mass of provisions, cooked and uncooked, dishes, plates, cups and saucers, eggs, a large lump of butter, a can of milk, a lot of dirty knives and forks, and the Lord knows what besides. Everything else was in the same style; and, wherever you went, you seemed to have excited the voracity of fresh legions of fleas. I am bound to say all this has been greatly changed; and, in fact, nothing of the sort is to be feared at present, or I should have been loath to mention it, as I am under considerable obligations to the curé; but the description here given is literally true; it was written on the spot, and I have transcribed it verbatim from my journal. There is one redeeming point in the

bill of fare—you often get genuine and very excellent chamois ; otherwise, the only meat is mutton, which is almost always small, tough, lean and stringy. It is only killed for travellers ; the people of the place never indulge in meat ; and, consequently, when a sheep is killed, the wayfaring public have to eat him all up before another is despatched. On arriving at Saas, about seven in the evening, in 1853, we asked for some meat with our suppers. It was readily promised, but was long in forthcoming ; and the curé at length came in with an apology, saying that the man was gone to kill a sheep for us, and we should not be kept waiting much longer. Anywhere but in Switzerland, the announcement would have had a de-appetizing tendency ; but we had been travelling twelve hours ; and when the poor beast which had, an hour ago, been bleating on the mountains, did come up to table, we did as much justice to the fare as the generally tough nature of the repast would allow. It was much tougher the next day.

For years past, the curé has been believed by all travellers to be the real, though not the nominal innkeeper. Some years ago, he and Zurbrucken, the proprietor of the rival establishment, effected an amalgamation of their respective concerns ; but until that time, there was no ostensible lay landlord at the Mont Rose, and the curé appeared to be, *de facto*, the innkeeper. But he always had a “*façon de parler*,” by which he interposed himself as a mere interpreter between his guests and the “*aubergiste*.” For instance, after we had initiated him into the mysteries of omelette-making, we asked for a second omelette, and the curé brought word that the aubergiste had commissioned him to say that there were no more eggs ; whereupon we returned, by the

same ambassador, our compliments to the aubergiste, and we hoped he would instruct his fowls to provide a due supply by the evening—a message which he promised to convey.

A more kind and hospitable man than the curé it would be difficult to find. The pastor of one of these secluded valleys is unavoidably a man of narrow means, and it would be absurd to expect in one who belongs essentially to the peasant-class, the kind or degree of refinement which usually marks an educated gentleman; but he is not deficient, either in natural intelligence, or in the learning which belongs to his station and order. He is a good Latin scholar, and can talk Latin with an ease and fluency that would shame many a professed scholar; and he appears to be greatly beloved and respected by the inhabitants of his district, which extends to the head of the valley in one direction, and as far as Stalden in the other. "If they thought I was going to leave them," he said one day, "*ils me déchireraient les culottes*;" and I believe he did not at all overrate the estimation in which his parishioners hold him.

He knows something of the botany, and a great deal of the topography and history, of the valley. He was the son of a peasant of Saas, and in his youth tended sheep and goats on the mountain side, and thus acquired his great strength and activity. As a young man, and up to fifty, as he told me, he would mount without a moment's pause to the highest summits, "and not a sob his toil confess;" now, he says, he must stop occasionally, to admire the prospect. He has a dash of poetry in his composition, and loves the mountains almost passionately; but not so exclusively as to overlook even the little flowers of the Alps. There was a touch of deep feeling in the tone

in which he spoke one day of their brief existence in these desolate spots—"Leur vie est très courte; elle est bientôt finie."

The most beautiful excursion, beyond all comparison, which can be made from Saas, is to the valley and glacier of Fée. I visited them in three successive years, 1852, 1853 and 1854; and found each successive visit confirm and enhance my impressions of the grandeur and beauty of the scene. Just below the Hotel du Mont Rose, a rough bridge crosses the foaming torrent of the Visp, after which you turn to the left, and proceed by a good path which rises rapidly up the side of the mountain, in a direction nearly parallel to the stream. You pass some twelve or fourteen little "stations," in each of which some wretched daub or grotesque figure is enshrined, to excite the piety and stimulate the zeal of the passer-by, till the path bends round to the right, and brings you to the chapel of Fée.

This is a place of some importance; for it is here that the annual fête of the valley—a meeting partly of a religious, and partly of a social, character—takes place. It is held on the 8th of September, and is attended by all the peasants for many miles round. I was in the valley of Fée, one year, during the celebration of the fête; and the curé told us with pride that there were no less than six priests assembled to assist in the solemnities. It was quite a brilliant scene, from the gay kerchiefs and smart head dresses of the women—who of course produced for the occasion, all the finery they possessed—and the cheerful holiday-look of the men. There must have been two or three hundred persons collected, in and about the chapel, when we passed it. Much of the religious worship was necessarily carried on out of doors; and, so far as we could observe, a great appearance

of earnestness and devotion prevailed. It is not easy, on the fête-day, to procure guides or porters, or to get the inhabitants of the neighbourhood to engage in any occupation which would interfere with their being present at the fête; and, indeed, knowing the strong wish of the curé that his people should be there, one would be reluctant to induce them to absent themselves.

Passing the chapel, you come presently to a green knoll of rich pasturage, surmounting which, you enter at once upon the secluded and charming valley of Fée. It lies at right angles to the valley of Saas, running nearly east and west, and is on a considerably higher level—perhaps some seven or eight hundred feet higher. There is a green hill at the entrance of the valley, on the north side, which fills up a large part of its width; and the main valley being so much lower, you see nothing of it; so that when once within the valley of Fée, you seem quite shut from all the rest of the world. The valley varies from half-a-mile to about a mile-and-half in width, and is bounded, on the north, by the bare and desolate precipices which connect the Mischabel range with the valley of Saas, and on the south, by the crags and snows of the Mittaghorn; while the head of the valley is occupied by a prodigious expanse of glacier, entirely filling a vast amphitheatre guarded by the tremendous and all but inaccessible peaks of the Dom and the Alleleinhorn. Embosomed in this imposing scene of desolation and solitude is the sweetest pastoral valley that ever God created or man enjoyed. The pasture-grounds are rich and well-watered; the grass is of the freshest green; trees grow freely and stoutly in the more sheltered spots; corn and flax are safely reared; rough, sunburnt chalets are dotted here and there about the fertile

meadows ; and about half-way up the valley, a comfortable hamlet of well-built and substantial cottages, nestling in the warmest spot, is sheltered from the bitterness of the easterly winds by a gentle undulation of the ground. I know no scene which rivals the exquisite loveliness of this peaceful valley : placed amongst the wildest and most terrific recesses of the Alps, its intrinsic beauty strikes with uncommon force upon the imagination, from the contrast it presents to all the surrounding images of sterility and desolation ; and a scene of eternal peace appears to slumber gently in the midst of eternal horrors. Such is the view that bursts in a few seconds upon the eye, on entering the valley of Fée.

Nor is this beautiful oasis in the desert of ice and snow and crag, as is too often the case with the fairest spots on earth, inhabited by a race unworthy of such a home. The natives are, to all appearance, totally distinct from those of the valley of Saas and the adjacent districts. The men are more manly and independent, the women finer and more shapely and good-looking than any in the neighbourhood. Their short faces, small noses, white teeth, determined though good-humoured mouths, full cheeks, blue eyes and light hair make them easily distinguishable from the natives of any other valley in the district. The people, especially the women, are cleaner, the houses are more comfortable and better kept, than in the valley of Saas, and the whole village wears an unmistakeable air of decent industry and prosperity.

The men in the upper valley of Saas, however, are themselves a finer set than those of the lower parts, between Stalden and Visp, and are less in the habit of imposing the burden of the family toil upon the women. I once wanted a porter to carry a knapsack and a carpet bag from Visp to Saas—I was told

I could not get a man to do the work ; but I could have them carried by a "grosse femme;" "a strapping woman," if I would;\* it was the very answer that was given to De Saussure, when he wanted to find some one in the valley of Macugnaga, who should transport his cases of minerals ; with the addition, in his case, that no man would be strong enough for the task. In that valley, however, at the present day, the men are a fine race ; the peasant girls are the tallest, straightest and finest women I have ever seen.

The valley of Fée presents unmistakeable evidence that it was once the bed of a glacier. Many "roches moutonnées" occur, along the whole length of the valley ; besides large transported blocks of serpentine and granite. The stratification of the rocks on the north side of the valley is very well marked, and the junction of the limestone with the gneiss distinctly defined. A walk of about three quarters of an hour, up the valley, and past the hamlet of Fée, brings you to a very remarkable spot. A large green hill of pasture ground, surmounted by a craggy mass as high again as the pasture, divides the great Fée glacier into two parts. The larger lies to the left ; a smaller part of the glacier, though itself of great size, pours down from the right, and comes curving round to the left, underneath the pasture ground, till it lies fairly below, and across the bottom of, the main arm of the glacier ; whose streams pour against it, and work out a passage under the ice, till they emerge, half a mile off, at the other side of the lesser branch of the glacier. The green hill, called the Fee-gletscher-alp, is thus an island amidst a sea of

\* The "strapping woman" in question laughed when she saw the load, and wanted to carry off the guide's knapsack as well.

ice; and affords excellent pasturage for the sheep and goats which are driven hither from the hamlet and chalets of Fée. A very rough track, worn by them and the shepherds, leads, first over a bridge which spans the glacier stream, and then amongst the mass of rocks and débris which lie accumulated at the foot of the glacier.

This terminal moraine of the glacier of Fée contains a singular variety of stones—granite, serpentine (which latter is abundant about Monte Rosa, being *in situ* in the higher parts of this mountain) a little limestone and less quartz, gneiss, a good deal of some very highly ferruginous stone, and, here and there, beautiful specimens of dolomite, were among the most easily recognizable. A very distinctive characteristic of the neighbourhood of Monte Rosa is the abundant intermixture with the soil of a fine micaceous grit. Every flower you gather, every root you pluck up, glistens with the fine plates of sparkling mineral; in my books of dried flowers, some of which have been gathered three or four years, the specimens which come from anywhere near Monte Rosa still catch the eye in a moment, from the brilliancy of the little fragments of mica with which they are powdered over.

After skirting the lower branch of the glacier, the track leads first underneath the foot of the upper branch, and then over a fatiguing bit of the lateral moraine which bounds the upper side of the lower branch. On my first visit, in 1852, I found the two arms of the glacier about fifty or sixty yards apart. The path seemed even then a dangerous one, as the glacier is upon a considerable slope, and great blocks of recently fallen ice strewed the way in many places. As we passed under the most advanced part of the upper branch, a great mass of ice seemed just ready



to part from the glacier, and we were glad to run for it.

The next year, we found the two branches of the glacier considerably nearer to one another, the distance between them being not above fifteen or twenty yards, and the danger of the path was proportionally increased. Balmat, who was with us on the second occasion, was very much struck with the dangerous look of the place, and advised us to run for some distance as fast as we could; and on our return in the afternoon, we found that several huge blocks had fallen since the morning. In 1854, we found the upper branch touching, and resting upon, the lower, and we had to cross a part of it, to get to the pasture ground beyond. Balmat reminded me of the blocks that had detached themselves while we were on the hill above, the year before; and as my wife was of the party, it was with some misgivings that he led the way, and he considered it so dangerous, that under his advice, on returning, we crossed the glacier higher up, though with some difficulty and fatigue, and though it involved a most laborious descent over the moraine on the other side. He exclaimed repeatedly that he did not like the passage, and that "*un grand malheur doit certainement arriver un jour quelconque.*"

In 1855, as I was told by a friend, the line of contact of the two arms was much longer, and the weight of the descending mass had curiously twisted the crevasses in its immediate neighbourhood. Indeed, throughout the valleys on this side of Monte Rosa, the glaciers were advancing during the four or five years preceding 1856—whether the progression has continued I have not heard. It is probable that the extreme heat of 1857 must have caused a considerable diminution of the glaciers about Monte

Rosa, as it did with those of Mont Blanc. I noticed, in 1853, close to the foot of the Gorner glacier, above Zermatt, a chalet which, the year before, had been a considerable distance from it, and I was told that probably in a few days it would be necessary to pull it down, and carry off all that was worth taking away. It was curious to see the earth pressed into wrinkles in front of the glacier, as it advanced in its slow, but sure and devastating course. It had then just laid hold of a young fir-tree, and I have no doubt that by the morrow the tree was torn up by the roots, or broken short off. I observed the same wrinkling of the earth in front of the Allelein glacier, in 1853 and 1854. In a few years, the ice will probably retreat again, slowly and gradually, leaving behind it a huge accumulation of rocks and boulders, in place of the fertile meadows it has destroyed.

Even the moraine of this great glacier is not destitute of vegetation. Many parts of it are covered with large patches of the *epilobium rosmarinum*, which blooms luxuriantly within a few feet of the ice, and makes the barren waste look almost gay with its great patches of bright pink flowers. It takes a long hour to mount to the top of the Fee-gletscher-alp. It is a steep climb, up a green hill, which affords excellent pasturage for goats and sheep, and abounds in marmots. You may hear them whistling on every side of you, and if you lie still, you may see them playing about by the dozen. Give them the least alarm, and they set up a shrill squeak, and dart instantly into their holes, where they will remain for some time, until satisfied that the coast is clear.

A few dwarf shrubs grow on the lowest parts of the Fee-alp, whose slopes are rich beyond description in wild flowers of the most clear and brilliant hues.

The *anemone sulphurea* is abundant on the lower part, and, as you ascend, gives place, at a well defined line, to the *geum montanum*,\* which literally dazzles the eye with its brightness and profusion, while all about are spread rich patches of gentians of every kind and shade and size, from the great spotted flower from whose root the tincture is concocted, to the delicate dark blue of the *verna* or *pumila*. Forget-me-nots, potentillas, sedums, saxifrages, milkworts, eyebright, are strewn about in wild abundance, and in the height of the short summer the scene is more like fairyland than a reality.

As you mount, everything becomes dwarfed; the geum flowers with an almost imperceptible stalk, the forget-me-nots crouch close to the ground, the soft herbage gives place to the reindeer moss and the *salix herbacea*—the smallest of plants with woody fibre—a tree so diminutive, that trunk, branches and foliage are often not half an inch in height, and which supplies the marmot and the chamois with food, when the grass withers under the severity of the climate. As you approach the glacier on either side of you, the colours become instantly clearer, fresher and brighter, though the flowers are smaller.†

\* It is curious to observe how clearly marked this line of separation is. Seeking for seeds of both plants, I could find, up to a certain point, only the anemone. All at once, I came upon the *geum* in great profusion, and met with no more anemones.

† The following is a list of the plants I have found on the Fee-gletscher-alp. It is very far from complete, for whenever I have been there, the season has been advanced; but it will serve to give some idea of the richness of the flora of this beautiful spot:—*Adenostyles leucophylla* (close to the rocks of La Tête). *Androsace obtusifolia*. *Anemone sulphurea* (abundant). *Arnica montana*. *Aster alpinus*. *Botrychium lunaria* (cryptog.) *Bunias*, sp.? *Bupleurum graminifolium*. *Calluna vulgaris* (ling). *Campanula barbata*. *Dianthus monspessulanus*. (Montpelier pink). *Euphorbia*, sp.? *Geum montanum* (very abundant).

The pasture grounds are surmounted by a chain of rugged and precipitous crags, called the rocks of La Tête. Among the débris at their feet are many crystals of quartz, and some small rubies of an inferior quality. There are indications of threads of quartz among the rocks, and probably the mineralogist would be well repaid for a search. There is one place, and one only, where the precipices can be scaled, by little inequalities in the surface; after which, you come upon a wild scene of desolation—masses of rock and boulders confusedly hurled together, and with scarcely mould enough to support the scantiest vegetation, varied by great patches of snow which seldom melt. Every here and there, however, in some neglected corner, the *ranunculus glacialis* announces your proximity to the eternal snows; and at the very summit of the crag, where on one side you are on a level with the ice, and on the other, at the brink of a sheer precipice of nearly a thousand feet, down which you gaze upon a surface broken by tremendous crevasses, luxuriant patches of the beautiful *gentiana nivalis*, blooming within a few feet of the glacier, year after year, “blush unseen, and waste their sweetness on the desert air.”

The scene from the summit of La Tête is one of extraordinary magnificence. On every side, you are

*Gentiana alpina*. *Gentiana bavarica*. *Gentiana bractenta*. *Gentiana ciliata*. *Gentiana germanica*. *Gentiana nivalis* (from the highest rocks of La Tête). *Gentiana pumila*. *Gentiana verna*. *Gnaphalium alpinum* (just below La Tête). *Helianthemum vulgare*. *Leucanthemum* (ox-eye daisy). *Linaria alpina*. *Lloydia serotina*. *Myosotis alpestris*. *Myosotis rupicola*. *Myosotis* sp.? *Potentilla aurea*. *Ranunculus alpestris* (rocks of La Tête). *Saxifraga aspera*. *Saxifraga aizoides*. *Saxifraga bryoides*. *Saxifraga crustata*. *Sedum album* (very fine). *Sempervivum arachnoideum*. *Sempervivum montanum*. *Thlaspi cepæifolium*. *Veronica bellidioides*. The grasses are also strikingly beautiful, and in plentiful variety.

surrounded by the immense Glacier of Fée, which descends from, and connects by one vast curtain of ice, the tremendous peaks of the Dom, on the right, and the Alphubel, and Alleleinhorn, on the left. This wide expanse is riven by the most formidable crevasses, some of which run nearly from side to side of the glacier. In one place, it seems as though the lid of a huge sarcophagus was supported upon four immense quadrangular pyramidal columns; so perfectly regular, that they might well have been fashioned by the hand of the mason. I observed this curious phenomenon in 1852, and the next year, on directing the telescope towards the quarter where I had seen it, I found precisely the same form repeated in the same place. It was a most remarkable instance of the recurrence, under the same conditions, of the same peculiarities of glacier formation. The resemblance to a slab resting on pillars was so well marked as to strike all who looked at it, upon each occasion, and as this part of the glacier is exceedingly crevassed, the particular masses which we saw upon the first occasion, must have been broken up, long before the second visit. In some of the great crevasses we counted, with the help of the telescope, as many as thirteen beds of snow, belonging to different years. A difficult but magnificent pass, through the mazes of these great crevasses, and across the lowest point in the range, leads by a steep and laborious descent to Täsch, in the valley of St. Nicholas. It is scarcely ever made, but can hardly be inferior in grandeur and interest to any pass in Switzerland.

Looking back from the summit of La Tête, the view down the valley of Fée, which lies spread out like a map at your feet, bounded by the bold range which flanks the opposite side of the valley of Saas,

is very beautiful indeed. There is something very pleasing to the imagination, in the contrast of the scene of awful desolation presented by the glacier and its surrounding peaks, with the rich blue carpet of gentians at your feet, and the soft pastoral scene below.

The descent from the top of La Tête to Saas need not occupy above a couple of hours; though the walk might be most agreeably protracted for a much longer time. Not having now the great glacier in front, to rivet the attention, you will be more at leisure to notice the many objects of picturesque\* and scientific interest which the valley presents. The numerous and well-marked traces of old glacier action, with which the rocks that bound the valley, or peep through the turf, are deeply scored and scratched, are especially worthy of notice. I know few places, except the valley of the Aar below the Grimsel, where they are equally clear and unmistakeable. The descent from the valley to Saas may be varied, by taking a path to the left of the "stations," which leads through a deep forest of firs, where magnificent tufts of the *gentiana asclepiadea*, two or three feet high, fringe the path on either hand, and make the sombre wood gay with their profusion of rich dark blue flowers. Almost before you emerge from the valley of Fée, the Bietsch-horn, a noble snow-capped mountain, to the north of the valley of the Rhone, comes in sight, and adds a new feature of grandeur to the scene. It is lost again, before you get down to the bridge at Saas.

\* The impressions made by this beautiful walk, one magnificent September afternoon, as we returned from the rocks of La Tête, will not readily be effaced. The shadows were getting long and deep on the mountains, while the upper snowy peaks glowed in a flood of sunshine, and we all thought we had never seen anything so beautiful in our lives.

The expedition to the valley of Fée cannot be too strongly recommended to persons visiting this neighbourhood. It is within a very moderate compass, and may be taken with little fatigue, and at no expense. A guide is not needed; and a mule or horse can go as far as the foot of the glacier; so that the excursion is one which a lady may take. It is not always possible, however, to get a mule or a horse, still less a side-saddle, at Saas; and it is, therefore, prudent, when a lady is of the party, to keep the animal which carried her to Saas. The hire of a horse or mule is generally six francs a day, for the animal, and the same for the man—a high price, but one which you almost always have to pay.

There are several other excursions which are well worth making from Saas. There is a very noble mountain, which forms an imposing object in the view up the valley from Visp, and which travellers are sometimes told is the Weisshorn, but which is really the Balfrin. It is the last of the great chain of snowy peaks which extend from Monte Rosa to the forks of the Visp at Stalden, and though not so high as the Strahlhorn, the Alphubel, or the Dom, is second to none in grandeur and beauty of form. A passage may be forced across the glaciers which lie at its southern base, into the valley of St. Nicholas, or the mountain itself may be scaled. The curé of Saas strongly urged me to make this ascent, assuring me that I should be well repaid, and that the view, especially of the chain of the Oberland, was very fine indeed; but I had not time for the expedition. The eastern extremity of the chain of heights which guard the northern flank of the valley of Fée, is a rounded peak, called the Gemshorn, from the back of which a glacier, connected with the range of the Mischabel, pours down in two branches, one over-

hanging the Fée valley, the other, called the Bider Gletscher, descending upon the valley of Saas; the head of this glacier may be gained by way of either branch; and then the peaks of the Balfrin will be seen, towering immediately above the summit of the pass, which leads in a north-westerly direction, under the precipices of the Balfrin, and down the side of the Ried Gletscher, into the valley of St. Nicholas, just below the village of that name.

The Bider glacier is curious, from the steepness of the declivity on which it lies. It must be approached on the north side, by descending the valley of Saas for about half an hour, and then mounting by the left bank of the Bider torrent, which issues from the foot of the glacier. The climb is a steep one, and occupies, perhaps, a couple of hours. The views, both down the valley of Saas, and across the valley of the Rhone, and of the mountains on the other side of the valley of Saas, are striking. H. and I visited the glacier in 1852; we found it resting on a slope of about  $40^{\circ}$ . It is about a quarter of a mile across, but it took us nearly half an hour to traverse it, as, for most of the distance, nearly every step had partly to be cut out with the spike of the alpenstock.

We found the other side to be a wall of ice, going sheer down about fifteen feet, with then a little sloping ledge, which was neither broad enough, nor flat enough, to jump upon. Then there came another sheer wall of ice, and then another ledge, and so on, for about fifty or sixty feet. We were resolved not to go back; and having, luckily, a piece of stout string, about ten feet long, in my pocket, I tied it round my waist. H. held me up, lying flat on the ice, so as not be overbalanced by my weight, in case I slipped, while I sat at the edge of the ice, and



hacked away a foot-hole beneath, with my alpenstock; then I got down a step and hacked out another, and so on, till I was able safely to jump on to the ledge. Then I perfected the foot-holes, and went up a little way, and guided H's feet into them; and thus we descended all the way. In repeating the process at the second wall of ice, I lost my alpenstock, which went shooting down hundreds of feet. Had either of us been alone, and such an accident happened, I do not know what he could have done. However, we managed with H's and after more than half-an-hour's labour, succeeded in getting off the glacier on to a wide waste of boulders and stones which covered the side of the mountain for some distance.

A gentleman who had come up with us, but had gone round the end of the glacier, and was waiting for us, told us that when he saw us getting down he had gone out of sight, because he feared that if we did slip, he might cry out and make us nervous. I was able to get my stick again; and, after crossing the mass of *débris*, we descended through acres and acres of bilberry plants, covered with fruit. There were bilberries enough to make tarts for the inhabitants of the whole valley, as long as the season lasted, and preserves for the whole of the winter besides. But throughout Switzerland and Savoy, there is an extraordinary neglect of this excellent fruit, which grows abundantly in most parts, and is never used for any purpose whatever. I have in vain endeavoured, over and over again, to call the attention of inn-keepers to the fact, that it is a favourite fruit with many English travellers; none of them will try it.

A year afterwards, I was passing up the valley of Saas, and, from the opposite side, had a good view

of the place where we crossed, and of the glacier above, and saw at a glance the extreme danger of the course we had taken. Above the waste of boulders, the glacier, instead of being safely confined within the rocky ridge under which we had passed, was actually hanging some distance down the surface, ready at any moment to precipitate upon the head of the unwary traveller boulder stones and broken masses of ice, which would descend with frightful velocity on the very spot which we had crossed. The enormous accumulation of rocks and débris ought to have warned us of the danger, though we could not see the glacier above us; but we had not then had much experience of the mountains. A few weeks later, we should not have committed a similar imprudence.

The range of mountains which bounds the valley of Saas on the east, and separates it from the valley of the Simplon is still better worth exploring than the opposite chain. It may be traversed in several places—across the Trift Gletscher to the Simplon road; by the glaciers south of the Weissmies to Zwischbergen and Bugnanco; across the glaciers of the Soninghorn, the Furgge Gletscher and the Ofenthal Gletscher to the fertile valley of Antrona; and by the Rosswang Gletscher to the Val Anzasca.

These passes are very little known; but, as the curé of Saas told me, are hardly second to any, in grandeur and interest. One of the passes to Antrona, he spoke of as especially beautiful, and not very difficult. A glance at the map will show that the views they command of the great chain which runs northward from Monte Rosa must be extremely fine. No doubt, now that the accommodation at Saas is far better than it used to be, the great moun-

tains and glacier passes which are accessible from this valley will be far more completely explored than they have hitherto been. I cannot give better advice to any one who wishes to become acquainted with some of the finest scenery which the Alps afford, than to repair to the hospitable Hotel du Mont Rose, and take counsel of the curé, whose knowledge of the neighbourhood is only equalled by his hearty good-will in giving the traveller every information in his power, and in procuring for him every facility for carrying out his plans.

No one who reaches Saas should omit to visit the Allelein glacier, if he is not going to cross the Moro. The view is very fine, and the glacier one of the most curious and instructive in Switzerland. It has already been mentioned, that it completely dams up the valley, and thus occasions the formation of the Mattmarksee. It is evident that it has formerly been much larger than it is at present. "Rochers moutonnés" are visible, high up the eastern side of the valley, opposite to the present glacier, and blocks of transported granite are strewn about, to a considerable height above the present level of the glacier. Some of the blocks near the glacier have fine plates and threads of turmaline imbedded in them. Among the rocks by the side of the Mattmarksee, saxifrages, rhododendrons, sedums and other hardy flowers bloom very luxuriantly; and on the moraine of the glacier which forms the barrier of the lake, *artemisia nana* is to be found.\*

The direction of the crevasses of the Allelein glacier is interesting, and affords an excellent instance of how they are affected by the nature of its bed and course. The glacier pours down against the eastern

\* A few of the plants found here are enumerated in Chap. VII.

side of the valley of Saas, and, being unsupported on its left, falls away down the valley, and ends its course, some distance below, where the torrent issues from a deep cavern of dark blue ice. The crevasses follow exactly the same change of direction, and radiate from one point till they have undergone a change of direction, of nearly  $90^{\circ}$ .

## CHAPTER VII.

### PASSAGE OF THE ALLELEIN GLACIER, FROM SAAS TO ZERMATT.

*"Per nives sempiternas et rupes tremendas."*

SEE CHAPTER VIII.



Start by Candle-light—Mountain sheep—Perilous scramble—  
Basin of the Allelein Glacier—Garlic—A Theological Guide—  
Deep Snow—Precipices of Ice—Kindness of the Curé—Valley  
of Täsch—Hunting the Marmot—A Race—The "Strong Man  
of Saas"—The Curé's Night-walk—Valley of St. Nicholas—  
View of the Matterhorn—Zermatt—Remarks.

AFTER waiting three days at Saas for clear weather, we started on Saturday, September 11th, 1852, to cross the great Allelein glacier into the valley of St. Nicholas. The preceding Thursday had been very wet and cold, which led us to expect much new snow, and we therefore set off very early. We were called half an hour after midnight, and by one o'clock were at breakfast; but there was so much chattering and dawdling over the preparations for the journey, that it was half past two before we were fairly off. Our party consisted of H. and myself, our two guides, and the curé, who had kindly offered to give us the bene-

fit of his experience and knowledge of the mountains, an English gentleman, named F., who had arrived the day before and wished to join us, and his Chamonni guide—Zachary Cachat, who afterwards accompanied me over the Col du Géant. We made a picturesque procession as we filed off up the valley ; first a guide carrying a lantern, then myself, then another guide with a lantern, then H., then the Chamonni man with a lantern, then F., and last of all the curé, who had armed himself with a tremendous alpenstock, eight or nine feet long, and made of ash—which looked very like business—and a pair of shoes, all soles and nails, and wore a white low-crowned felt hat with the top knocked in. For two hours, we walked and stumbled along the rugged path by the glancing and uncertain light of the lanterns. The first signs of dawn appeared soon after four, and at half-past four, the curé ordered the lights to be put out and deposited behind a rock, where they were “left until called for.”

When we came to the foot of the Allelein glacier, where it chokes up the valley, the curé took the lead, and went off at a rattling pace ; the way in which he selected the best places to traverse the moraine and the foot of the glacier, and his decided air, showing that he knew well what he was about. The breaking of day over the rugged and crevassed mass of the Allelein glacier and the snowy heights which tower above it, was indescribably beautiful. There was a light, fleecy cloud, resting on the upper part of the glacier, which seemed to glitter with no borrowed radiance.

About five o'clock, we reached the upper end of the Mattmarksee, and met quantities of sheep coming down from the mountains. It was the day of dividing them among their respective owners, after the sum-

mer's pasturing on the higher slopes, which were now getting too cold and exposed for them. Many were remarkably fine animals, and all very tame; they crowded about us, and licked our hands, in a manner which showed that they had had no reason to be afraid of man.

We traversed the plain at the upper end of the lake, and passing by some chalets, at about half-past five began the real ascent. There is here a deep and wide ravine, running nearly due west, far into the mountain side. Crossing this, we climbed its further side, keeping at present rather away from the main part of the mountain, and zig-zagging nearly north and south, in order to take advantage of some pasture grounds. At half past six, just above these, we first came to the snow, freshly fallen, and crisp with the night's frost, lying far below where it is usually first met with. Here we turned to the west, and proceeded up the ravine I have mentioned. It was a scramble along ledges of rock, and over rough and stony ground, which lasted for an hour and a half, and was a very bad bit of climbing. The snow was about four or five inches deep, and the ledges along which we had to crawl looked as if they would scarcely afford footing for a goat. There was a precipice, a thousand feet deep, just beneath us for the whole distance, and as the footing was almost always shelving down towards it, often within a foot or two of the edge, uncertain and precarious, covered with treacherous snow, which prevented our seeing whether it was upon a firm rock, or a loose piece of stone, or slippery tuft of herbage that we were about to tread—it was really a scramble of some risk, and exciting enough. I had one serious slip, which alarmed the whole party a good deal.

The views, all along here, whenever we were able

to spare attention enough to look at them, were of the sublimest character. Far beneath us, at our very feet, lay the ravine I have spoken of, surmounted, on the opposite side, by a tremendous mass of glacier and snow, which stretched away in one unbroken mass to the Cima de Jazzi, and, to the left of this peak, sweeping round to the Monte Moro, and thence to the mountains on the other side of the valley of Saas. Most of these glacier fields appear, from a distance, to be but slightly crevassed, and the dazzling extent of pure, smooth, glistening snow, stretching away, slope after slope, sweep after sweep, basin after basin and peak after peak, all sparkling in the bright sunlight of a beautiful September morning made a scene easier to remember than to describe.

We came, at length, to a steep bank of snow on our right, and turning half round climbed up it for some minutes. At eight o'clock exactly, we reached its summit, and found that we had arrived at the edge of the glacier: and here a fresh scene of glory burst upon the view. We gazed down into the gigantic basin of the Allelein glacier, which we were about to cross, bounded, on the opposite side to where we stood, by the black and frowning precipices of the Alleleinhorn, which conceals the loftier Alphubel from the sight, and filled with an enormous mass of ice riven and torn asunder by crevasses and chasms of terrific width and depth. Beneath the peak of the Alleleinhorn, the glacier pours down through a narrow opening into the valley of Saas. Beyond this, lies another vast glacier basin, (that of Fée) partly hidden by the boundary wall of the Allelein glacier, over which we looked upon the further slopes of the Fée glacier, and upon the magnificent arêtes and black crags of the Mischabel and the Dom, sprinkled only with patches of snow, and forming a



fine contrast to the glistening fields of spotless white which, in other directions, met the eye. On the left (the side on which we stood) the Rympsischhorn; and, nearer, the Strahlhorn close in and form the mighty barriers of the glacier. We did not, however, upon this occasion, see the view to advantage, as the hazy state of the atmosphere concealed from us all the most distant parts of the prospect.\*

The curé said that, but for the new snow, we should go right across the glacier; but as the smaller crevasses would be hidden, and only crusted over with the new snow, it would not be safe, and we must therefore mount much higher, and skirt the greater part of the glacier basin, passing beneath the base of the Strahlhorn. We therefore, brought out the ropes and got in harness; and here we found that, by the kind and careful forethought of the curé, a stout pair of gaiters had been provided for each of us. These he would insist upon tying on with his own hands. They proved a most acceptable protection against the deep snow. We now filed off to the left, up a vast swelling mountain of snow, and then up another beyond that, whose crest, consisting of a few bare rocks, we reached soon after ten o'clock.

Here we made our first halt, and lunched on eggs, meat, bread and cheese, wine and brandy. Our dismay may be imagined, when the meat turned out so highly seasoned with garlic, that, though as hungry as hunters, we were obliged to abandon it to the guides, and content ourselves with bread and cheese and eggs. Fortunately, the eggs were not flavoured with the noisome herb.

From this point, we had hoped to see the mountains of the distant Tyrol, but the mists were rising, and

\* I saw the distant view next year, in passing over the Col Inseng, as mentioned in the next chapter.

had already hidden them, and the curé, who had intended, we found, to leave us here and return by himself, became apprehensive that we might be caught in a fog; and he resolved, as he knew the mountains much better than our guides, to accompany us into the valley of St. Nicholas. We little knew the inconvenience to which he was putting himself, and thankfully accepted the assistance of so experienced and able a mountaineer; and accordingly, in about twenty minutes, resumed our tackle and took to the snow again. The curé now put himself at our head, and made the steps, followed by the Chamouni guide, F., H., myself and our two guides. It was wonderful to see the vigour with which the curé, who was sixty-three years of age, stumped on through the deep snow. To go first and make the steps is no small exertion. If you want to save yourself labour, go as far back in the line of march as you can, when the snow is deep. A great deal of the comfort of those who follow depends upon the precision and regularity with which the steps are made by the leader; they should be not too far apart; it is very fatiguing to find each step a little longer than is natural to you—and above all, they should be regular. When they are not so, the labour becomes beyond all comparison greater, and the manner in which he makes the steps in the snow is one of the surest indications of a well-trained guide.

We were now sinking, at every step, from twelve to eighteen inches deep, and often much deeper; H., who is a heavier man than myself, several times plunged in nearly to his waist; but the curé held on for a great distance, and then took turns with the Chamouni guide and one of our men. The other, a young man studying for the church, and acting as guide during the summer months, in order to eke

out his scanty means, was not accustomed to carry heavy burdens, and was almost knocked up before the day was over, though he went last all the way. He was the only one of the party, except the curé, who attempted to dispense with veils or spectacles, or both. But he had not been a hour on the glacier, before his bloodshot eyes showed how little he was fit to forego such aids. One of our party insisted upon his taking the spectacles he himself was wearing; an act of self-denial, which cost him the whole of the skin of his face, for he was obliged to double his veil over his eyes, to keep out the blinding glare, and consequently had no protection for the lower part of his face, which, in a day or two, was blistered all over, like paint on a scorched board, and continued so for nearly a week. As for the curé, he was far above any such effeminate necessities; his weather-beaten countenance was proof alike against light and heat and wind, and I believe he could have looked the sun in the face without blinking.

The bad state of the snow not only greatly increased the labour of walking, but compelled us to make a great *détour* under the base of the Strahlhorn, so as to skirt the central part of the glacier, and avoid the most crevassed portion. Here, one of our guides was leading the procession, and we found a vast difference between his long, irregular steps, and the short, well-measured tread of the curé, or the Chamouni man. We had hardly started from our breakfasting place, when a magnificent avalanche came crashing down the precipices which lie beneath the Strahlhorn on the east. We heard it thundering below, long after we lost sight of it. About eleven o'clock, we arrived at a strange pillar of rock, which juts up in solitary state from the bosom of the glacier, to a considerable height; the ice had failed to close

round its southern side, and the great chasm thus left disclosed most distinctly and beautifully, the structure and formation of the glacier, beneath the thick mantle of snow which lay many feet deep on the surface of the ice. Below this rock, the glacier was rifted into fearful crevasses.

At this point, we turned somewhat to the right, and, leaving the Strahlhorn, descended very rapidly for about half an hour, and crossed in an oblique direction to the other side of the glacier, just under the peak of the Alleleinhorn, where stupendous precipices of ice, covered with huge ice-pendants, and glittering with all the colours of the rainbow, presented a scene of sparkling and fantastic magnificence. The glacier was here very steep, and a glissade impossible, both from the state of the snow, and because at the bottom of the slope was an immense crevasse, which we had to go round. And now began our last ascent, to the top of a kind of saddle, which lies between the Alleleinhorn and the Rympsischhorn. This was an hour's work, and most laborious; for not only was the slope very steep, and the snow deep and freshly fallen, but the sun had been playing on it for hours, with unclouded brightness, and it was consequently soft and slushy, and the heat almost overpowering. Before we reached the top, a cloud came between us and the sun, and a fresh breeze sprang up across the glacier. In a minute, it was intensely cold; the breath froze on our veils, and we could with difficulty keep our hands from being benumbed. It was about five minutes to one when we reached the summit of the pass, a height of more than 13,000 feet above the level of the sea, and more than 8,000 above Saas. H. and I both felt the rarity of the air sensibly, and I was a good deal exhausted; but the magnificence of the view, though

confined by the mist to the wild peaks and trackless waste of glacier in our immediate neighbourhood, well repaid the labour. The curé told us, that had it been fine, we should have seen the lakes and plains of Italy, the mountains of the Tyrol, the Bernese Oberland, and Mont Blanc; but we were unfortunately obliged to take them upon trust.

The glacier of Täsch, by which we were to descend into the valley of St. Nicholas, is broken by crevasses and chasms wider and more terrible than even those of the Allelein glacier. But we kept well to the right of the most formidable, and after about five-and-forty minutes' walking down a gentle slope of snow, and across some ugly bridges of fresh snow, spanning huge crevasses, reached some rocks on the right or north side of the glacier, where we stopped nearly half an hour, and dined as well as the all-pervading smack of garlic would allow us to do. Here we were startled to learn that our kind friend the curé was actually going to walk all the way back from Täsch to Saas, by way of Stalden, in the night, in order to perform early mass at five o'clock the next morning. I should not do justice to ourselves, if I did not express the grateful sense we all entertained of this act of almost unparalleled kindness on the part of the curé, in thus accompanying us beyond all chance of danger or accident, at the cost of such immense labour and inconvenience; as a walk of six or seven and twenty hours at a stretch must involve, in the case of a man on the wrong side of sixty. The obligation was enhanced by the delicacy which kept us in ignorance of the extent of the sacrifice until it was too late to prevent it.

After dinner, we took to the glacier again, and crossing another slope, to the right of all its vast and dangerous crevasses, about three o'clock quitted

the ice for the lateral moraine. Here, we unfastened the ropes by which we had been tied together for the last seven hours. It was just eight horns and a half since we had left the turf in the valley of Saas, and for several hours we had never taken a step less than six inches deep in the snow, which was generally up to our knees, and not unfrequently to our thighs. The curé's gaiters had proved of the greatest service, and kept us warm, though nothing could prevent the snow from penetrating our boots.

We had now a rapid and laborious descent, over moraine and rock, chequered with scanty patches of vegetation, for the best part of an hour, at the end of which we found ourselves on a beautiful soft turf, and in a level valley, about three miles long, expanding in the middle to a broad plain. We fell in with a hunter, armed with a clumsy rifle, of enormous thickness and weight. We had heard the echoes of two shots when on the glacier above; they proved to have been the death-knells of two marmots which he was carrying home. The patience required in the chase of these animals is extraordinary. When once seriously frightened, they run to their holes, and hours sometimes elapse before they will venture out again. The hunter has no chance if he is seen, and has to hide behind a rock, or build a wall of stones, from behind which he can level his rifle and take aim, unperceived by the poor little marmot. It would seem scarcely worth the while of any man to pursue such game, for the marmot is but lightly esteemed, and the skin is not worth much—perhaps a franc or two.

At the end of this fertile little valley, which is watered by the torrent of the Täsch glacier, we came to a very steep descent over the pasture grounds; and here, the curé raced us down the mountain,

leaping and bounding like a young chamois; he made himself very merry at the expense of the Chammouni man, whom he "chaffed" unmercifully for getting heated with the run. At a quarter past five, we reached the village of Täsch, in the valley of St. Nicholas. We were near the end of our day's work, but the curé had scarcely more than half done his. Ten or eleven hours' walk lay before him, through the dark night,—five hours down the valley to Stalden, and then four or five hours ascent, by the rugged path from Stalden to Saas. However, he did not seem to think very much of the matter, and was only anxious to make the most of what remained of daylight, as the road to St. Nicholas is bad, and a slip might be dangerous. He asked us to let one of our guides accompany him, as the way was long and lonely in the dark. The theological student wished us to keep him for some excursions from Zermatt, and we therefore arranged that the curé should take the other, a man whom he always spoke of as the "strong man of Saas." He was a short thick-set fellow, of no great promise, but of extraordinary performance. He had carried nearly half a hundred-weight of ropes, provisions and baggage, and had gone first in the snow during the heaviest part of the ascent, and yet seemed as fresh as when he started, and apparently thought no more of the night-march home than the curé did. Indeed, I think he was rather pleased at the prospect of getting back, without the expense of a night's lodging at an inn.

We took a reluctant leave of our friend the curé, whom we watched till an angle in the path concealed him from our sight. We learned, a year afterwards, that he reached St. Nicholas about eight, where he sat and slept, with his head on the table, for two

hours, and starting again at ten, arrived at Saas about four the next morning. At five, he was at his post in the church, performing early mass, after which, he went to bed and slept most of the day; but he was not a bit the worse for the expedition—a day's work which would have tried most younger men.

When the curé disappeared, we turned up the valley, by a beautiful path which rises and falls a good deal, but on the whole leads gently upwards, partly through dark woods of fir, partly by the side of a wild dashing torrent which carries off the waters of the great Gorner glacier. This is crossed by a bridge, at a great height above the stream, at a place where it rushes through a savage gorge, whose sides all but meet at the top, and at length rich meadow lands are reached, and Zermatt is before you, nestled in the very bosom of this great valley, flanked by lofty mountains, all of which are surmounted by vast glaciers and rugged peaks. The sides of the valley, however, are too precipitous for the snowy ranges above them to be visible. The view is closed, at the end of the valley, by the great glacier fields—from here they look almost like plains—which lie at the base of the Breithorn, the little Mont Cervin and the Matterhorn. The only glacier which descends to the valley is the great Gorner Gletscher, one of the longest in Switzerland, which sweeps away to the left till you reach its sources in the very heart of Monte Rosa. To the right of the Gorner glacier, you behold with amazement, I might say with awe, the tremendous peak of the Matterhorn, towering in solitary grandeur far into the heavens; apparently lurching over to the left, till you might fancy that it must some day fall with a crash that would shake the earth to its centre. Rising, as it



does, a sheer precipice of five thousand feet, and standing apart from any other peak, it looks, from this valley, higher than any other mountain in Switzerland. It comes very suddenly into sight at a turn of the path, and it is impossible to conceive a more stupendous object.

It is nearly five miles from Täsch to Zermatt, but we were in high spirits at our successful accomplishment of a very difficult pass, and H. and I soon distanced our theological friend, who had the baggage to carry, poor fellow, and was terribly tired with the day's work. We shouldered our poles and marched gaily on, chatting over the incidents of the day, and agreeing that it would form a landmark in our recollections throughout life, stopping, every now and then, to gaze in wonder at the sharp peak of the Matterhorn, and in an hour and five minutes after bidding adieu to our brave old friend the curé, we were in front of the clean and hospitable Hôtel du Mont Cervin, enjoying the hearty welcome of our friend Mr. A., who had come from Saas that day, by way of Stalden, and by whose kindness we found excellent rooms engaged for us, and every accommodation and comfort in readiness.

The Allelein pass, as will be evident from the foregoing description, is not to be undertaken by persons of doubtful strength or endurance, or without the assistance of good guides. The difficulty, however, varies much according to the state of the snow. It is very seldom so bad as we found it on this occasion: I passed across part of the same glacier, the following year, and was hardly over my shoe tops in snow. The danger, as well as the difficulty, is much increased, when the snow is deep and freshly fallen, as the crevasses are then in a great measure concealed, and the first intimation you have of their

existence may be by the giving way of the snow underneath you. When no snow has fallen for a considerable time, there is hardly any danger from this cause. A pass of this height must, however, always be a matter of some difficulty and fatigue, and should not be taken without a certain amount of preparation and precaution. When we crossed the Allelein glacier, it was not very easy to meet with a really good guide for the pass, as it had then been but rarely made. We were about the fifth party that had ever crossed the glacier; and I doubt if there were four persons, either at Saas or Zermatt, besides our friend the curé, who were familiar with the passage. By this time, no doubt, it is much better known in both valleys. The labour would be less, if the pass were made from the valley of St. Nicholas to that of Saas, than if taken in the opposite direction, and the views would be, if anything, superior; but the difficulty, and, in a bad state of the snow, the danger, of the descent would be much greater. Our fatigue would have been much diminished by sleeping at the chalets above the Mattmarksee, instead of starting from Saas; but the people in the higher parts of the valley were just on the move, and coming down for the winter, so that the curé thought we might find the chalets shut up, and the hay taken away.

There is now an inn—as I am told a tolerably comfortable one—at the head of the Mattmarksee. There are very few passes to vie in interest with those by which this great offshoot of the Monte Rosa chain is crossed, and, for a glacier pass of the first order, the Allelein is by no means particularly difficult. This neighbourhood has one considerable advantage for excursionists over the Chamouni district. The price of guides is much more moderate—they charge by

the day's work, and do not exact an extravagant and almost prohibitory charge in respect of the higher passes. Six francs a day, for the number of days occupied, including the time necessary for the return journey to the place of starting, is the universal tariff; and the guide considers himself amply repaid for a day of extraordinary fatigue by a *bonnemain* of two or three francs. Were the *Allelein* pass in the neighbourhood of Chamouni, the guides would probably demand at least thirty or forty francs apiece for the excursion. Here, it is considered liberal, if you give fifteen. One guide for each traveller is needed, if there is much to carry; if the traps were sent round by the valleys, two guides for three travellers, or perhaps one guide to two travellers would be sufficient; but it is never well to be underhanded on these great glacier expeditions. All the best guides I have known have been opposed to such a course; it is true, all may go perfectly well, and then so many are not wanted; but if by any chance bad weather should come on, or an accident happen, and any one need help, you can have no assistance, save what your own party can render, and if they are too few for the task, then, as an old guide once said to me in such a state of things, "*que faire, Monsieur, dans ces montagnes?*"

## CHAPTER VIII.

### THE PASSAGE OF THE FINDELEN GLACIER, ADLER PASS, OR COL IMSENG, FROM SAAS TO ZERMATT.

So, to a steep and difficult descent,  
Trusting ourselves, we wound from crag to crag,  
Where passage could be won.

WORDSWORTH.



Pass discovered by the Curé—The Mattmarksee—Tame Chamois  
—A Night in the Hay—Ascent to the Allelein Glacier—Flowers  
—Magnificent Prospect—Beautiful Crevasses—The Col Imseng  
—Vegetation close to the Summit—The Monte Rosa Chain—  
Intense Cold—Fearful Descent—The Curé on the Rocks—The  
Curé among the Crevasses—Another Race—Effect of a hard  
day's work.

THE year after the passage of the Allelein glacier, described in the last chapter, I again visited Saas, and was glad to find the curé as well and hale as ever. My friend H. was not with me, but I was accompanied by my brother, to whom, as well as to myself, the curé gave a most hearty reception, going so far as even to kill a sheep specially for us, and to set part of it on the table within an hour of the time when the poor thing was grazing on the mountain. We spent a day or two at Saas, making excursions to the Fee-alp and the rocks of La Tête, and gratefully accepted the

offer of the curé to be our guide over another of the great passes to Zermatt. The pass by which he now proposed to take us across the chain was almost a new one, which had been discovered by himself and the curé of Zermatt, in the course of an exploring expedition which they made, to the head of the Finde-len glacier, which descends into the valley of St. Nicholas, at a short distance above Zermatt. He told us that he had conducted Studer, the great German explorer of the Monte Rosa district, across the pass in the year 1849 ; but that he did not think it had been crossed since then by any one. He had himself made the attempt, a few days before, but although he had reached the summit of the pass, he had been unable to descend, on account of the bad state of the ice. He assured us that we should find ourselves well repaid by the grandeur of the scenery ; and added that he hoped we should now be able to see the distant views, which the mists had hidden from us last year. We had crossed the Col du Géant four or five days before, and did not think we should find any place worse than some we had met with in that passage. Moreover, we had with us my tried friend Balmat, and Zachary Cachat, who had been with us since we passed the Col du Géant. Cachat, it may be remembered, had already made the passage of the Allelein glacier, the year before, as recorded in the last chapter. We thought, therefore, we could not have a better opportunity, and gladly made our preparations for the passage of the Col Imseug, as I shall venture to call it, after the name of its discoverer. We resolved to shorten the day's work, this time, by sleeping at the chalets of the Mattmarksee, as it was earlier in the year, and we ran no risk of finding them dismantled. Accordingly, on Monday afternoon, the 29th August, 1853,

we made ready for the journey, and started, about four o'clock, for the chalets. It had been showery all the day, and we had our misgivings as to the fate of the enterprise; but the curé, after many careful investigations of the sky, the winds and the mountain tops, told us to have no fear, as he was sure it would be fine on the morrow. We took the old, and now almost familiar, path to the foot of the Allelein glacier and the Mattmarksee, loitering somewhat by the way, to gather specimens of the various beautiful wild flowers, of which there was a rich profusion at this time of the year,\* and to notice the many interesting illustrations of glacier action, present and past, displayed by this remarkable glacier. Here, as elsewhere in these valleys, the glacier appeared to have made a great advance, since my last visit; and the earth was deeply furrowed and wrinkled, for some distance in advance of it. I was greatly tempted to stray along the southern moraine, above the Mattmarksee, by the curé's assurance that I should there find the *artemisia nana* in flower, but we were already late, and were now obliged to push on vigorously: at the chalets at the head of the Mattmarksee, we found the people milking the goats, amongst which

\* Most of the plants on the moraine of the Allelein glacier and by the side of the Mattmarksee were, as might be expected, of a hardy kind. The saxifrages and sedums appeared to be the most abundant. I found the most magnificent specimen of *saxifraga aizoides* (lesser mountain s.) I have ever seen. The *sedum rubens* was abundant, and its delicate red blossoms showed prettily against the dark rock. *Polygonum alpinum* flourished well, and was in very full flower; *saxifraga crustata* was singularly beautiful, as also was the *saxifraga cotyledon*; *saxifraga oppositifolia* and *silene acaulis* were very small and dwarfed. I was surprised to find a very large specimen of *centaurea pectinata* close to the glacier. *Botrychium lunaria* was fine. These can form only a very small portion of the flora; but though we walked gently, we could not stop long, and I had not time for a regular botanizing foray.

there was a young chamois, not quite so tame as they, but apparently in a fair way to become so. He would not descend from the roof of a chalet, where he had leaped up as soon as he saw us approaching; but he allowed us to touch his head, and took bits of food from our hands. They said that, at present, he had shown no desire to escape.

The curé stopped behind at these chalets, to arrange some affairs, as he said; but he had brought "the strong man of Saas" with him, to be his companion home from Zermatt; and as it was getting dark, the strong man took a rough oil-lamp from the curé, and went with us to the highest chalets, which were rather more than half an hour's distance further up the mountain. They were situated in the ravine which runs up towards the Strahlhorn, and which is bounded by the precipices along the top of which our path had lain last year. It was quite dark before we reached the chalets, misty and rainy, with a sharp north wind which cut us to the very bones, so that, altogether, the prospect for the morrow was not cheering. Unfortunately, the indifferent and unwholesome food at Saas had produced its natural effect on my brother, who was so poorly from indigestion, that he hardly knew whether he would be able to get on. The rocks we found to be very highly polished by ancient glacier action, and one was so much scored with the characteristic striæ which indicate the passage of a glacier over the spot, that, dark as it was, they were clearly distinguishable.

We reached the chalet about eight o'clock, and found it to consist of a large room, built of loose stones, with no windows or chimney, but abundantly furnished with all the utensils and appurtenances of chalet life. The hay was in a separate building of the same character, a few paces off, and the curé had

warranted it clean and sweet. There was no one in the chalet when we arrived, but the guides struck a light, lit the lamp, kindled a fire, and proceeded to dry our boots and socks, which were wet through; to clean pans, boil water, toast bread, and make all sorts of preparations. Presently, the curé came up, with the old man to whom the chalets belonged, and who was to accompany us next day to the top of the pass, and help us to descend, and then come back by himself. We now found out what the curé meant by stopping "to arrange some affairs." He had waited for the goats to be milked, and, with characteristic hospitality, had himself carried up from below two good-sized pails of goat's milk for our supper and breakfast.

We made a most picturesque group round the fire, in the dim, smoky light; for there were no candles—only the fire, the flickering oil-lamp, and, occasionally, when more light was needed, to seek for something we wanted, a splinter of dry pine wood cut from the store which the tenants of the chalet had gathered together and piled in a corner. We saw hung on the beams which tied together the rafters supporting the roof, a goodly array of bright pans and pots, and, on a sort of stage which occupied the further end of the room, were piled a number of cheeses; but we could see little more of the contents of the chalet. We had brought up some tea, but no tea-pot, and, therefore, had to boil tea and water together in an open pan, at least, a foot across; my brother and I drank it out of two tin cups we found, which then served for the milk and coffee of the rest, who did not care for tea. It was astonishing what a good article was manufactured with such an unpromising apparatus. We had no butter, but the cheese of our host of the chalet



proved excellent, and I made a thoroughly good meal, and enjoyed the manner of it, heartily. My brother continued very unwell, and indeed got worse; so that he unwillingly made up his mind to go back the next morning, and rejoin some friends whom he had quitted to accompany me; and we were all obliged to own the resolution a wise one.

We were soon ready for bed—that is, for hay—and we retired to the barn where that article was stored. It was a low, oblong building, with no other apertures than the door-way and the crannies between the rough stones of which it was built. There were plenty of these, and there could be no fear of insufficient ventilation. The keen north wind soughed and whistled through them with a mournful sound; the night was misty and the rain was falling, but the curé was still confident as to the morrow, and we tried as hard as we could to believe he would be right, and prepared for sleep. The guides shook down a quantity of hay, and put a sheet over it; then they stuffed a pillow-case with hay, and thus made up no despicable bed. We lay upon this, and then they put another sheet over us, and covered that well with hay; we tied our handkerchiefs over our heads, to keep off the wind, and were as warm and comfortable as we could wish. The little oil-lamp was taken away, and we were left in the dark. It was a strange situation, but not by any means a bad one, and I have seldom slept more soundly or peacefully than in the chalets of the Mattmarksee. I was just dozing off, when the rest came to bed very quietly, each creeping gently to his portion of hay and burrowing well into it; and then all was as still as death itself, except the whistling of the wind through the holes between the stones.

We all slept very well till early in the morning of

Tuesday, 30th of August, when the first thing I was conscious of was a rustling of the hay at some little distance from me, and presently the door of the hut creaked, and I saw the brawny, thick-set figure of the curé standing out against the sky, and looking gigantic in the dim twilight. Then I saw another stalwart form, likewise cut out against the sky behind, and heard a short consultation in a low voice outside. I suppose it was too early to get up, for two elephantine figures again displayed themselves in the open doorway, and stole with noiseless step up the barn. It seemed as if two ruffians were coming to cut our throats. One of them nestled somewhere very near to us, for I heard his stealthy tread among the hay close by, succeeded by a gentle burrowing, as he rolled himself into a warm hole. Then I slept for some time longer, and when I looked up again, the sky was a trifle lighter, and a succession of black giants were turning out of the barn: this time, they left the door open, and did not come back, which told me that all was right, and we were to make a start. Presently I heard the crackling of a fire in the neighbouring chalet, and the cheerful voice of the curé, as he busied himself about all manner of preparations for our comfort. It was half an hour or more before Balmat returned, with the little oil-lamp, by which we made a hasty toilette, after a good wash in a rivulet close to the barn, and in a few minutes were in the chalet, warming ourselves by the wood fire. It was a cold sharp morning; the thermometer stood at 4° centigrade, (about 39° Fahrenheit) and there were mists about, but not thick or threatening mists, and every one pronounced that they would soon roll away, and the curé's prophecy of a fine day be verified. The stars shone with great brilliancy, and seemed nearer to us

than usual—appearances which Balmat told me he had often noticed at great heights.

My brother was still unwell; and, to our great regret, we had to part. After a slight breakfast, he set off down the mountain, accompanied by the strong man of Saas, who went with him as far as the Mattmarksee, while I prepared myself for the day's work by a vigorous attack upon the bread, coffee and cheese. The combination was not quite *en règle* for a breakfast, or any other specific meal; but I have made many a worse.

We were to have started by half-past three; but these Saas people are always behind-hand, (it is a bad habit they have), and the preparations were not completed till a quarter to five—to my great regret, as I knew well how very much depends, in these mountain excursions, upon being early on the move.

I have described, in the last chapter, how, the year before, we mounted to the upper part of the Allelein glacier, and made our first halt at a place where some black rocks crop out above the surface of the snow. This point was the first stage in to-day's journey also; but we reached it by a somewhat different route. For a long way, it was exactly the same: and I was both surprised and pleased at the vividness with which I remembered every spot and every incident in last year's expedition. I recognized, at once, the place where we had first come upon the snow: there was now no snow for nearly a couple of thousand feet higher. I was able to point out to Balmat the exact spot where, the year before, I had had a bad slip. There was now no danger of any such accident. It is amazing how much difference the snow makes; the path which we all felt to be dangerous last year is, without the snow, perfectly safe, and even easy, though it winds near

the brink of a precipice. About three quarters of an hour after starting, Balmat's eagle eye detected my brother—a grey speck by the side of the Matmarksee—he was now alone, for the strong man of Saas had rejoined us some time ago. We found by the telescope that it was he, and that he was getting fast over the ground, and we, therefore, indulged the hope that he would be all right again, as soon as he got into the land of better bread. When we came to the point where, the year before, we had turned sharp to the right, up a steep slope of snow, the curé asked me whether I would go the same way again, and revisit that part of the glacier, or take a somewhat shorter course, keeping straight on towards the head of the ravine. I was anxious to reach the top as early as possible; for I wanted not to miss the fine distant view—about which certain mists on the side of Piedmont made me very uneasy—and gave my voice for the shorter course. Besides, the way was new, and I was continually gathering the most beautiful flowers—amongst them, many which I had not found before. The forget-me-nots surpassed those of every other spot I have visited; and among them grew large patches of *androsace obtusifolia*, whose clear white flowers looked like a forget-me-not of the glaciers. This beautiful flower is to be found in abundance on the Fee-alp; but these are the only two places in which I have met with it, though I have little doubt it grows in many similar situations. The *veronica alpina* grew freely; *geum montanum*, of course, was everywhere about. I found also the common kidney-vetch (*anthyllis vulneraria*), at a greater elevation than I should have expected. As we mounted, we came upon some very beautiful specimens of *saxifraga oppositifolia*, *saxifraga stellaris*, with its beautifully-dotted petals, and the slender

*myosotis cæspitosa* ; and upon the most magnificent patches of *myosotis nana* that I ever saw. It almost ceased to be a dwarf ; and the mountain side was, in places, of a rich and brilliant blue, from the profusion of its flowers. In the same region, we found the little *campanula cenisia*, the milk-white *cerastium latifolium*, and the beautiful *ranunculus glacialis*, with its warm coating of down on the calyx, and whiter than usual.

It was interesting to observe the plants and flowers getting gradually smaller and more dwarfed, as we ascended. We found the same forget-me-nots, and the same saxifrages, but with gradually lessening stalks, till the flowers seemed crouched upon the leaves, the colours all the while growing brighter, and clearer, and fresher. There were fewer gentians than I expected ; and I did not see any of the rarer varieties. This seems to be a great resort of the marmot. We saw innumerable traces of them ; and we started one fellow so near, that, had we had breath to spare for a good run, I think we might have caught him ; for they are not nimble animals.

Balmat, as usual, went grubbing about everywhere for stones, flowers, or anything else he could pick up. He found, amongst other things, some stone rich in copper ore, some dolomite, some serpentine, and many beautiful wild flowers. No matter how hard the day's work might be, I never knew Balmat's interest to flag. He was always looking about here, there, and everywhere ; and nothing escaped his quick eye. This made him a profitable companion, in more ways than one ; for emulation kept me up to the mark myself, more than anything else would have done. Balmat's knowledge is so considerable on many scientific subjects, and especially in all that relates to the structure and action of the glaciers,

that one can seldom be long in his society without learning something; and he has so much intelligence, good feeling, and good breeding, combined with such genuine and unaffected modesty, that he is always an instructive and agreeable companion.

The view, as we scrambled along the rocks and over the scanty herbage, was just as I have described it in the last chapter. As we mounted rapidly, and drew near to the snow, we had the pleasure of observing, each time we looked back, that we were rising sensibly higher above the mountains on the opposite side of the valley of Saas, separating that valley from the Simplon; but, as yet, we did not see beyond their dark masses mingled with dazzling slopes of snow and glacier. At length, we were getting quite near to the base of the Strahlhorn, and the curé pointed out to us where, the year before, we had seen a very fine avalanche fall. We were close to the snow, and at last turned sharply to the right, when a few yards of exceedingly steep and slippery ascent brought us to what proved to be the summit of the first swell of snow we had ascended from the opposite side, the previous year. The curé had hit upon the spot with wonderful precision. And here, burst upon us in a moment a scene of such inconceivable extent and magnificence, as to beggar all description.

Opposite to us, we behold the frowning precipices of the Alleleinhorn, towering abruptly above the glacier. Then comes the wide, glittering expanse of the Fée, partly hidden by the chain of rugged heights which form the boundary wall of the Allelein glacier, and guarded by the majestic range of the Mischabel, whose black crags contrast finely with the broad fields of white in front. Further to the right, at a distance of thirty or forty miles, but apparently quite

near, the whole range of Oberland lies unfolded to the view. The Altels, the Doldenhorn, the Blumlis Alp, the Breithorn, the Jungfrau, the Mönch, Eiger, Finster Aarhorn, Shreckhorn, Wetterhorn, display themselves in one glorious line of mingled precipice and glacier. Not a cloud between us and them, save one delicate wreath, which floats midway between the base and the summit of the Jungfrau, and serves only to show the gigantic proportions of the masses we are gazing upon. Viewed from the south, all seems new, except the familiar needle-like peaks of the Finster Aarhorn and the Shreckhorn. In the transparent atmosphere of this brilliant morning, distance is annihilated, and every glacier, every rock, every hollow and every gully lies clearly and distinctly revealed to us. This time, there is no concealment, no reserve, no mist, no disappointment.

It is difficult to turn from such a scene, but it is only a part of the glorious panorama; and still more impressive and solemn, from the dimness of distance, are the colossal forms of the mountains of the Tyrol. In massive groups they rise, one behind another, till the eye rests at length upon the gigantic Ortler Spitz, which lifts its white head to the height of 14,000 feet, and whose bright glaciers, distant as far as Skiddaw from Snowdon, or as London from the Malvern Hills, shine like polished mirrors in the morning sun.

South of these, clad in a light blue haze which gives to them an indescribable charm, while it scarcely robs them of any of their distinctness, are the mountain chains which border on the lakes of Italy, from those by the Lake of Como in the far east, to the nearer group which shuts in the head of the Lago Maggiore. No words can express the

beauty of these mountains as they lie clothed with an atmosphere of blue, and showing chain behind chain, in all the exquisite gradations of distance. Next should have come the lakes and plains of Italy, but here, alas ! fortune was still unpropitious, and a thin veil of delicate mist, beautiful in itself, concealed the smiling prospect. But we could see exactly where they lay, and it was no difficult task for the imagination to picture them, with their pleasant alternations of shining waters and fertile tracts of land, losing themselves, towards the south-east, in the vagueness of mere distance. Between them and us, and further towards the south-east and south, are the fine masses of unbroken dazzling glaciers, that I have spoken of before ; and further to the south again, nearly the whole of the eastern side of the Monte Rosa chain is before us—so near, that the minutest feature of every peak and glacier is distinctly visible. We are already as high as the Weiss Thor, though from this point, the projecting masses of the Strahlhorn hide the pass itself from the view.

For some minutes hardly a sound was uttered, except an occasional exclamation of irrepressible wonder and admiration ; we were all impressed with a feeling akin to awe, at the vastness and sublimity of the prospect. The curé enjoyed it as much as anybody, and was well pleased to have such enthusiastic admirers of the scenery to which he took so much delight in introducing us. We thought of my brother, trudging down the valley to Stalden, and sighed to think what he had missed.

We stopped a full half hour here, gazing on a view from which it was difficult to tear ourselves away, and then descended a short distance, to the rocks on which we had breakfasted last year, and which we again made the scene of a hearty and a



merry meal. Here Balmat screwed into my boots four small double-headed pieces of iron, of which we had provided ourselves with a stock at Chamouni, and the guides did the same with their boots; a precaution which proved of good service later in the day. These implements are a great assistance in ascending or descending banks of hardened snow, or slopes of ice, and are far easier to manage than crampons, which are apt to embarrass and trip up those who are not accustomed to use them.

It was half past eight when we continued our journey, and for some time it was exactly the same as our track, the year before. We made for the high rock which juts up from the middle of the ice, but the crevasse which springs from it was not so curious or so beautiful this year as the last. The precipices of ice under which we had passed, when mounting the last slope of the Allelein glacier, were likewise far less beautiful; nor were they so covered with pendants of ice. I noticed the same difference, the following day, in some ice-precipices near the Hörnli; nor is it difficult to account for. There had been, when we were making the passage of the Col Imseng, no snow to speak of, for two months; these beautiful and striking objects owe their formation to the drippings from the soft and fresh snow, which melts readily; and they themselves disappear beneath the action of the sun, if their waste be not continually supplied. The previous year, there had been a great deal of wet weather for weeks before we crossed the glacier.

At this rock, which forms a most conspicuous and useful finger-post, we diverged from our last year's course; and instead of descending into the hollow of the glacier, turned to the left, and began a long and steep ascent up the snows of the Strahlhorn, which lay immediately above our path. Here we found the

walking very pleasant, as the sun was not hot, nor beating directly on the slopes we were mounting, and there was a gentle and refreshing breeze. In some of the more exposed spots, however, we could see that there was a strong wind, blowing up little clouds and whirlwinds of dry snow. The appearances presented by some of the blocks of ice and of the dark, deep blue crevasses of the higher parts of the Strahlhorn, which were still in the shade, or just tipped with a narrow band of glistening sunlight, were of extraordinary wildness and beauty. Many of the crevasses on the glacier we were ascending were also of wonderful beauty; we strayed out of our way to gaze into some of them, which were only to be approached with caution, as the ice nearly met on either side, and disclosed beneath, dark blue caverns, of fathomless depth, with long pendants of lustrous ice fringing the sides, and hanging in fantastic groups from the translucent roof. As the sun shone down into some of them, or forced his way, in delicate floods of pale green light, through the overhanging domes of ice, the scene seemed to belong rather to fairyland than to reality.

The Col, for which we were making our way, is a very narrow ridge, not many yards wide, guarded on the left by the Strahlhorn, and on the right by the Rympsischhorn,\* which rises above it in a sheer precipice, for many hundreds of feet—a dark crag scarcely specked with one spot of snow. The Strahlhorn is sufficiently steep, but it might well be climbed on this side; had we felt that we had a couple of hours to spare, we should probably have attempted it; the question was discussed, but the curé said we had yet to descend to the Findelen glacier, and he could not tell how long that would take us. I have heard from travellers who have taken

\* Called also the Rympfischhorn: I have followed the curé.

this pass since we did, and who, finding the descent in a better state, had time to ascend the Strahlhorn, that the panorama from its summit is well worth the extra climb,\* which, as we anticipated, does not present any serious difficulty.

On reaching the crest of the Col, another scene of surpassing beauty came suddenly into view. We looked down into the vast basin which forms the western side of the Monte Rosa chain. Monte Rosa was on our left, all his peaks standing boldly out against the cloudless sky. We were ourselves between 13,000 and 14,000 feet high, so that he did not seem very far above us. From where we stood to Monte Rosa, and again, from Monte Rosa to the Matterhorn, is one vast amphitheatre of precipitous summits, connected by long lines of glacier, such as I have never seen before or since. Opposite to us was the amazing peak of the Matterhorn, an object which never failed to fill me with astonishment and awe, whenever my eye rested upon its towering form. A line from the Rympsischhorn, which flanked our Col, to the Matterhorn, would have made the diameter of a semicircle marked by the several peaks of the Strahlhorn, the Cima de Jazzi, Monte Rosa, the Lyskamm — a stupendous precipice, four or five thousand feet of sheer descent, flecked with an exquisite net-work of snowy deposit—the twin peaks of the Zwillinge, (often called Castor and Pollux), the dark and frowning crags of the Breithorn, and the little Mont Cervin, all of whose immense glaciers pour down into the great basin below, filling it with such a mass of ice, such an extent of snow, such inconceivable varieties of glacier

\* Balmat repeatedly declared that, judging from the successive views we had, which would be all included in the view from the Strahlhorn, it must far exceed in interest the prospect from the summit of Mont Blanc.

scenery, as are no where else to be witnessed. The precipices of the Rympsischhorn are prolonged, on the right, towards the centre of the amphitheatre; and one great ridge of rock and glacier sweeps fairly from the heart of Monte Rosa himself into the valley of St. Nicholas below; so that the whole of this vast glacier system is ultimately forced into two great streams. The largest, the Gorner Gletscher, which pours down from the inmost recesses of Monte Rosa, and receives all the tributaries of the rest of the chain, up to the Matterhorn, is, I believe, the longest glacier in Switzerland. The other, which lay immediately beneath us, terminates in the Findelen glacier, and is nourished by all the glacier surface between the Rympsischhorn and Monte Rosa.

It will give some idea of the height of this pass, when it is mentioned that we fairly looked down upon the summit of the St. Théodule pass, itself between eleven and twelve thousand feet high. Over it, and beyond it, we saw many of the Piedmontese Alps: the shoulder of the Rympsischhorn, however, prevented our seeing as far westward as Mont Blanc. Not one of us felt the rarity of the air in the least. From some unexplained cause, the rarefaction of the air, at great heights, is less felt about Monte Rosa than in the neighbourhood of Mont Blanc. The fact is familiar, I believe, to most of the Chamouni guides, who travel among other localities more frequently than the guides of Switzerland; and I have observed it in my own case. We were in the highest health and spirits, and had reached the top of the pass actually without fatigue; and we realized the curé's exclamation, when from below he was pointing to the great crags and dazzling fields of snow, and said, while his eye fired up like lightning, "Oh! nous serons gais là-haut!"

The actual Col is bounded on the left by a small

patch of bare rock, against which we made a halt, while Balmat and the curé advanced to the edge, to reconnoitre the descent. It was a sight which might well shake nerves not accustomed in some degree to the difficulties and dangers of the glaciers. There was a steep and narrow slope, not of snow, but of bare, hard ice, having an inclination of at least  $60^{\circ}$ , lying in a hollow, between the rocky wall of the Rympsischhorn and a projecting part of the Strahlhorn; it was unbroken, for about three hundred feet, by anything but a small outcropping of rock, a few feet below the top, the slope of which was about the same as that of the glacier, and which was so smooth and even, that it looked more hopeless than the ice itself. There were some little fragments of rock, which made a kind of stepping-stones from the top of the Col to this place; and down these we must begin our descent.

The wind blew up this gully with the force of a hurricane, and with icy coldness. The temperature had been pleasant during the ascent, but here, in a spot sheltered from the wind, the mercury, which a few seconds before had marked  $50^{\circ}$ , sank at once to  $34^{\circ}$ ; and, in the wind, the cold was intense. Balmat advised some brandy all round, before going down, and recommended me to keep behind the rocks as long as I could. He lent me a red comforter he had in his knapsack. I tied my handkerchief over my hat, to keep it on, and to keep me warm, put on my gloves and muffitees, pulled off my veil and spectacles, (for, notwithstanding the glare, it was no undertaking to enter upon without one's full powers of vision) and sat down quietly behind the rock, till I should be summoned to move forward. We found flies and butterflies which had strayed even to this height, and which would inevitably pay with their

lives the forfeit of their temerity. Of course, we did not meet with many ; but on this, as on every other glacier pass I have made, we found some. On the rocks at the very summit of the Col, I picked up an eagle's feather—no inappropriate memento of such a spot.

The descent was a long one : when Balmat called out to me, I came forth from my hiding place, and encountered for the first time the full fury of the blast—the most piercing I had ever yet felt. In about five minutes, my hands and feet were perfectly numbed, and I stood on a little ledge of rock, hopping about like a dancing bear, in the hope of keeping in a little life. Cachat was hewing steps in the ice, some thirty or forty feet below, and said he had no feeling in his hands ; every fragment that he hewed out was blown upwards, into our faces. Balmat was standing on a safe place, holding the rope which Cachat had tied round his waist, and Cachat was making a passage, across the slope of ice, to a horrible little gully beneath the rock and the glacier, with a smooth slab of the Rympsischhorn projecting over the place where it would be necessary to descend. Here he made some tolerable steps, and a few feet below was a ledge of rocks, on which there was room for us to stand. I went down as far as I could, past Balmat, towards the steps in the ice, the curé, who was voted a “*véritable diable*” on the rocks, and who can hang on by his eyelids, following and holding my rope. Then came the strong man of Saas, holding the curé's rope, and the old man of the chalet, who was to go back from this point, remained at the top, holding the strong man's rope. When Cachat's steps were completed, he held one end of his rope and Balmat the other, so as to make a sort of bannister by the side of the steps. Cachat, however, had descended to the

ledge of rocks by the side of the glacier, so that when you got near to the gully, and went, as it were, into the corner, the bannister was necessarily slack, and afforded only protection in case of a slip, but not present aid. The strong man of Saas went first; then I crossed, and found it, I must confess, nervous work, and the rocks particularly unpleasant. The pointed irons in the soles of the boots were of great service here. In passing under the slab which overhung the gully, we had to lean backwards, till we were nearly full length upon the glacier. At length I reached the ledge of rocks in safety: then came the curé, and lastly Balmat, who had transferred the rope the old man held, from the strong man to himself, when he began to cross the slope. The old man descended to the rocks where Balmat had stood, and stayed there to hold the ropes for some time longer. Fortunately, the curé had taken care to provide us with above a hundred feet of rope, and we had a great ice-hatchet, which we had procured at Chamouni for the passage of the Col du Géant. Without the hatchet and the ropes, we could never have accomplished the descent. For a few feet, we could now scramble down by the help of the rock. Then came a smooth slab of rock, with an ugly long step on the further side. The Chamouni men did not like it, and set to work on the ice again, and cut a set of zig-zag steps, round the rock which projected into the glacier—a work which occupied some time. It was bitterly cold, though not so cold as above. Meanwhile, the curé scrambled down the slab of rock—Heaven only knows how—and I, being securely tied, thought I would do the same. I got down a foot or two, my face to the rock, and then found it perfectly smooth and slippery for some feet, and I could not tell what might be below; so I called

out to the strong man, who lowered me gently, supported by the rope alone, over the slab (which I found about four or five feet high on the other side) and I landed just where Cachat and Balmat had brought the steps to. The strong man came down like the curé; all these Saas men are better at rock-work than at ice-work. From this point, we could again scramble down a few paces, and then came a broadish ledge, or set of ledges, of rock, where there was room for us all. And now, steps had to be cut in the ice, for fifty or sixty feet; this was a long business, though there was here a little frozen snow on the surface of the glacier, which made the descent rather easier than it had been. At the foot of the slope was a crevasse, three or four feet wide, and no one could tell how deep—what the Germans call a *Bergschrund*—such as is always found at the bottom of an *arête* like this, where the inclination of the glacier becomes more moderate. Beyond the crevasse there was tolerable walking, but the crevasse was still about two hundred feet off, and many a score of steps must be cut, before we could reach it. Fortunately, on this ledge it was pretty warm, and as the view was of extraordinary magnificence, the waiting was not unpleasant. The curé turned some difficult rocks, a little lower down; but even he could get no farther in that direction, and was obliged to come back.

The strong man of Saas is at work forty feet below, cutting steps in the ice; Balmat and Cachat are holding him up, in case of a slip, with a long rope. I am luxuriating in the wildness of the scene, and the picturesque appearance of our group; the old man has let go his rope, and, after watching us awhile, is waving his last adieu, and clambering up the rocks—a far less difficult task than to go down them—to take his solitary way homewards, along the



track pointed out by our footsteps. Let us stop one moment to look at the curé, as he comes round the corner back again to our resting-place, peering about everywhere, to try and find some practicable passage among the rocks.

First comes his head—a square, weather-beaten, strong, intelligent face, spectacles on his eyes (for he is very short-sighted) his head surmounted by a rough, low-crowned, tapering, broad-brimmed hat, like what a Staffordshire bargeman often wears. Then come his broad, brawny shoulders, just the least bit bent with the weight of three score active years; but now, more rounded by what he is engaged upon, for he is looking anxiously about, peeping over here and down there, gazing with cat-like feelings at every straight wall of rock, and longing to venture down its face. Balmat has given him several warnings that he will send down loose stones on the strong man's head and kill him, but he is so intent upon finding a passage that he takes no heed of Balmat's admonitions, and the strong man must look out for himself and trust in Providence, for the curé will not help him, and the stones continue to roll past him, as he toils on the stubborn ice. A knapsack is strapped on the curé's hardy back; for while the men are engaged in this difficult work, he will carry it, despite Balmat's urgent remonstrances and my entreaties. He wears to-day his oldest coat, a priest's coat, reaching down to his heels, patched in places innumerable, threadbare, and so shiny that he might use it for a looking-glass, to shave by. He has tied the tails up in front with a cotton handkerchief, and thus discloses a wondrous fabric. It once was velvet; but what with darns, patches and rents, it is impossible to say whether thread, cloth, or velvet now predominates.

Whatever be its substance, it is tied at the knees—and now torn at the knees, and torn behind, too, for the matter of that; for to-day has been a day of trial for newer garments than those which the curé has wisely donned for this expedition, and our scrambling does not suit their antiquity. A pair of legs which many a younger man might envy, firm-set, sturdy, and straight as an arrow, are encased, below the knees, in stout and coarse brown worsted stockings, on his feet he wears a pair of shoes, well hob-nailed, as broad and flat as platters, and no doubt comfortable enough. He has in his hand a heavy pole of ash, seven or eight feet long. What do I say? has it in his hand? He had, a minute ago, but it has slipped, and I hear it shooting down far below, striking against the rocks as it falls, and Balmat looks over a precipice, and says it is sticking upright in the snow, in a place where we shall be able to get it again. So much the better: a mountaineer leaving his alpenstock among the mountains feels like a soldier leaving his musket on the field, and would, at any time, run considerable risks to recover it.

The curé is a fine fellow; his people love him, and we, who have experienced his genuine kindness and untiring hospitality, do not wonder that they do so; we are all getting attached to him, and whenever he is mentioned, "*c'est un brave homme,*" escapes from the lips of one or another.

While we were loitering about here, the curé touched me on the shoulder, and, pointing to the crags above and the snows around, exclaimed in a tone which marked the genuine lover of nature, "*per nives sempiternas et rupes tremendas!*" It was a graceful quotation from the inscription on a snuff-box, of which my friend H. and I had begged his

acceptance, as a memorial of our grateful sense of his kindness, on the occasion of our passage of the Allelein glacier, the year before.\* I was surprised to find vegetation at so great a height. I gathered at this halting-place, by far the finest *ranunculus alpestris* that I ever saw. It was not only of unusual size, but was of a clear, brilliant white, far exceeding anything that one generally sees. This specimen, which I have still, measures, in its present state, four inches and a half in height, and more than an inch across; of course, if it had been measured when freshly pressed, and before it got dry, it would have been still wider. A few yards lower down, I found a fine specimen of *ranunculus glacialis*; but it is a flower of very inferior beauty to the *r. alpestris*. I also found a piece of *saxifraga androsacea*. It is interesting, as being what is very difficult to meet with in less solitary places, perfect. It is a plant of which the marmot is so fond, that the leaves, flowers and stems are generally nibbled all round. Here, of course, the plant was quite safe from the visits of the marmot. The only animal likely to disturb it was man.

After about half an hour on the rock, all was reported ready for another start, and we resumed our tackle and set off again. We all arrived, without accident, at the foot of this series of steps, after

\* The inscription was as follows:

Reverendo patri Imseng,  
egregii ejus hospitii,  
itinerisque longi,  
per nives sempiternas et rupes tremendas,  
eo duce tute confecti  
memores,  
hoc munusculum dedere  
Alfredus Wills et Ricardus Child Heath.  
MDCCCLIII.

which we were able to make a good bit of descent by the rocks. Very thankful indeed were we, when we could get anything not worse than the descent of the Col du Géant, which, a week ago, had seemed to us about as bad as need be. Here, however, it was not so dangerous as it had been, since, as the curé observed, if any one did slip and fall on to the ice, he would probably descend with sufficient velocity to shoot over the crevasse, without going so fast as to be killed. At length, we were not many feet from the nearest part of the crevasse, and had but to cross it; this, however, could only be done in one place, and a wide stretch of glacier must be traversed, to reach the spot. Steps had again to be cut, and more than half an hour was occupied in making them, during which I was basking in the sunshine, lying on a warm rock, and enjoying the noble prospect before me. There was but one thing wanting, to have made the expedition complete—that my brother should have been able to be with us here, instead of toiling down the hot path to Visp; whither we supposed he would be about arriving by this time.

I was surprised to see what hard work it was to cut steps. Four or five appeared to be quite enough for one man at a time, and the guides relieved each other continually, till the whole way was completed, and we passed one by one along the steps.

“Optata demum . . . potiuntur arena;”

it seemed as if our difficulties were over; but we had been three hours, and more, in coming from the top, though it was scarcely a hundred yards above us. It was just ten o'clock, when we arrived at the crest of the Col; and it was a quarter past one, before we were all across the narrow bridge which spanned the

crevasse. Balmat's opinion as to the curé's alpenstock was correct : it was easily reached and brought back to its owner in triumph.

The curé would have led us to the rocks on the right, again, after we had passed a short distance along the glacier ; but, as we should then have had to make a very long and tiresome scramble upwards, to gain the snow slopes which surmounted the rocks, and were strongly averse to "such a getting upstairs," we out-voted the curé on his own pass, and determined to traverse the centre of the glacier, much crevassed though it was, and to descend as low as we could on the ice. To please the curé, however, who did not like the crevasses at all, we kept near the rocks, as long as possible, and then struck across to the left, almost coming back again, to cross this arm of the glacier and get thence to the main body, of which this was but a tributary.

Bold and experienced mountaineer as he was, the curé was certainly not so much at home among the crevasses as elsewhere ; it was the only species of difficulty or danger which he seemed reluctant to encounter ; whereas Balmat, confident in his perfect theoretical and scientific knowledge of the glaciers, was always cool and at his ease, amongst apparently the most chaotic mazes of crevasses and chasms. Once, indeed, the curé, in his precipitation, nearly pulled me into a deep and wide crevasse. There was a considerable interval between us ; and it often happened, from the irregularities of the glacier, that while one was ascending, another would be descending ; or that the slope which one man was passing over would be quite different from that which his neighbour was upon. Thus, we came at one time to a large crevasse, there was no difficulty in jumping across it, but on the other side there was a

steep bank of snow. The curé, whom I followed, went flying over the crevasse, and slipped down the bank of snow. I could not keep pace with him; and just I was coming up to the crevasse, a violent jerk of the rope at my waist nearly threw me down; and it was with the greatest difficulty that I saved myself from a plunge into, instead of a leap across, the chasm. With the numerous détours we were obliged to make among the great crevasses, six, eight, and ten feet wide, it took us an hour and a quarter to traverse this branch of the glacier.

The curé was longing for his beloved rocks and loose stones; and the Saas man was muttering imprecations between his teeth on these yawning chasms, and on us who had brought him into the midst of them. I overheard him telling the curé that his father, who was a great chamois hunter, had given him repeated and earnest injunctions not to imperil his life by venturing into such places. The rest of us were congratulating ourselves on having, any how, escaped the rocks. Balmat, whom I have always found nearly as much at home on a glacier he has never seen before, as on the Mer de Glace, or the Glacier des Bossons, led the way, and conducted us with unerring skill through the labyrinth of crevasses. About half-past two, we arrived at a huge black mass of slippery débris, and disintegrated rock, which abutted on the main arm of the glacier. Here, we sat down to dinner, which we had earned by six hours of no common labour and excitement; and, it is needless to say, we made a cheerful and hearty meal. We finished up everything in our larder, except a little bread and cheese. For my part, I could have gladly demolished even these, but was forced, by very shame, to desist. There is no tonic to compare with the keen and hungry air of the glaciers. I

found two beautiful little flowers growing in this desolate spot—a *saxifraga oppositifolia*, and an *artemisia* (sp. P)—both, very fresh and bright in their colours.

At three o'clock, we resumed our march, and now proceeded by the main channel of the Findelen glacier; and as the crevasses compelled us to make many a détour, it was past five before we came to the part where it was necessary to quit the ice and take to the turf on the right. The vegetation was very bright and luxuriant—a pleasant sight, after so many hours upon the glacier. We found great quantities of the *astrantia minor*; the plant which is said to impart its peculiar flavour to the Chamouni honey. The brilliant flower of the ubiquitous *geum* shone like spots of gold amidst the luxuriant herbage. We had resumed our spectacles and veils, after passing the great crevasse at the head of the glacier; and we still kept the spectacles on, by Balmat's advice, as a measure of precaution, till, in about three-quarters of an hour, as we were nearing the foot of the glacier, we met the lengthening shadows of the setting sun, cast upon us from the Gornergrat and the Hochthäligrat; then, at last, we pulled off our spectacles, and had the pleasure of an uninterrupted view of the beautiful scenes around us. Still, not a cloud was visible, in the whole expanse of the blue and transparent sky.

We descended very rapidly, till we came to a zig-zag path above the valley of St. Nicholas, when I reminded the curé of the chase he had led us, last year, in descending upon Täsch, and challenging him to another race, started off full pelt down the steep mountain side, through a thick wood of larch and fir, with the whole train at my heels. We gave Cachat another warming, at which the curé again made himself merry; and, after some hair-breadth escapes of

severe falls, over stumps of trees and holes and blocks of stone, we all found ourselves in the valley in an incredibly short space of time. We came down many hundreds of feet, in almost as little time as it has taken to record it. We had still a pleasant stroll of a quarter of an hour over the meadows, and reached Zermatt comfortably at a little before seven, having occupied nine hours in the descent.

No better illustration can be given of the extent to which the difficulties and dangers of an Alpine pass depend upon the state of the snow and the weather, than was afforded by our passages of the Allelein glacier and of the Col Imseng. The risks of the approach to the Allelein glacier, which, in 1852, appeared formidable even to experienced guides, had all but vanished in 1853; the dangers often arising from hidden crevasses had no existence; the serious fatigue of traversing the broad wastes of glacier, two or three feet deep in fresh or sodden snow, was reduced to that which an ascent of many hours must in every case involve.

On the other hand, the same cause made the descent from the summit of the Col much more difficult, as it deprived us of the facilities which a coating of snow, firmly frozen underneath, and soft at the top, would have afforded us. I have heard of persons who crossed in 1855 descending the slope which cost us so much time and labour, in a quarter of an hour, and the curé said it was far worse than he had known it on former occasions. Still, for a pass of such magnitude, it was by no means a hard day's work. We had saved immensely, by sleeping at the chalets;\* during the ascent, we never once needed to stop to draw breath; and after a good wash and a change of

\* I have mentioned, in the last chapter, that there is now an inn at the head of the Mattmarksee.



linen, we were almost ready for a fresh start, the same evening.

This, no doubt, was partly owing to the great enjoyment and pleasurable excitement of such a day; we felt some of the effects more considerably the next day, and found—what we always knew to be a sure sign of latent fatigue—that our powers of observation were much impaired. I remember saying to Balmat, the next afternoon, while we were descending the valley of St. Nicholas, in a thunderstorm, “How is this? I notice neither flowers, nor rocks, nor anything else to-day.” “Ah, sir,” said he, “I have often observed the same thing myself. *Après une grande course, on ne remarque pas beaucoup les objets.*”

I thought, for a day or two afterwards, that Balmat spoke low and indistinctly, and I was obliged frequently to ask him to repeat what he had said. I taxed him with it, but he assured me the fault was mine—I was deaf—also not an unusual consequence of “grandes courses.” It happened several times, in 1852, that H. was deaf after long excursions, especially after tiring descents; but I had never myself experienced such a result before.

It is difficult to say from which side this pass ought to be taken. If made from Zermatt, you would have the magnificent distant view of the Oberland and the Tyrol before your face during a considerable portion of the descent; and the difficult slope of ice at the head of the Findelen glacier would undoubtedly be far more easily ascended than descended; but you would be obliged to turn your back on the sublime amphitheatre of mountains, which stretches from the Matterhorn to the Rympsischhorn—a scene which almost all travellers agree in pronouncing to be unequalled by any similar view among the Alps. We

could have no hesitation which direction to prefer, as we knew that by visiting Saas first, we should probably secure the assistance of that skilful mountaineer, the curé, in any glacier expedition we might determine to undertake. Indeed, I doubt if at that time there was a man at Zermatt who could have acted as guide for that pass. In a state of the snow and ice such as we found, I doubt if the descent could have been accomplished by a party of less than four or five; but, under ordinary circumstances, the expense and the number of guides required for this expedition are about the same as for the Allelein glacier, and the remarks in the last chapter on this subject, will apply to the passage of the Findelen, which ought, I think, in justice to the curé, to receive the title of the "Col Imseng." \*

\* I am sorry to say my suggestion has not been successful. The pass, which is now a favourite one, has acquired, I do not know exactly how, the more poetical title of the "Adler" or "Eagle" pass.

## CHAPTER IX.

### THE HOCHTHALIGRAT AND THE NEIGHBOURHOOD OF ZERMATT.

Look all around ! behold one boundless scene  
Of beauty, wildness and sublimity !

ELLIOTT.

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The Riffelberg and its Inn—The Hochthaligrat—Beauty of the
Flowers—Sublime Prospect—Monte Rosa—The Matterhorn—
Bernese Chain—The Schwarzsee—Curious optical Phenomenon—
Glacier of Zmutt—The Col d'Erin—The Val d'Anniviers
—Barbarism of the Inhabitants.

THE neighbourhood of Zermatt* abounds in interesting excursions, and many days might well be spent in exploring it. For a near view of glacier scenery, there is probably nothing in Switzerland to compare with the panoramas from the top of the Hochthäligrat and the Gornergrat, lofty ridges which penetrate into the very heart of Monte Rosa, and from which the spectator gazes upon a range of glacier, precipice and crag, the most gigantic and the most striking among the Alps. At present, facilities exist for the enjoyment of these sublime scenes, such as are found in no other part of Switzerland ; for, on the ridge of

* See the map at p. 106.

the Riffelberg, three or four thousand feet higher than Zermatt, and on a spot commanding a magnificent prospect of the Monte Rosa chain, a small hotel has been lately built, which for cleanliness and comfort, and for the civility and attention of the host, may challenge comparison with almost any inn amongst the High Alps. A steep but good mule path leads from Zermatt to the Riffelberg, and a pleasant reception, good fare, and clean though homely accommodation are sure to await the traveller on his arrival. It is often impossible to get taken in there for the night, unless the beds have been engaged beforehand, as a comfortable inn, in so splendid a situation, is sure to be thronged in fine weather.

The Riffelberg is the lower extremity of a ridge which attains its highest point in the Stockhorn, a snow-clad eminence which rises to a great height in the middle of the great basin of Monte Rosa, being nearly due north of Monte Rosa itself, and nearly due west of the Cima de Jazzi. This ridge forms the northern boundary of the great Gorner glacier, and is the wall which, on that side, confines the glacier within its channel. It rises, always steeply, and often precipitously, above the glacier, and extends, east and west, for a distance of about six or eight miles. Just above the Riffelberg, it rises into a shaggy peak, called the Riffelhorn, often said to be inaccessible, but probably only so because it is less worth climbing than the pointed ridges of the Gornergrat and the Hochthäligrat,* which are also commanding eminences in the chain, lying to the east of the Riffelhorn, and between it and the Stock-

* Since the former edition was published, the Riffelhorn has been frequently ascended. Some German students happened to find the way, and now any of the good Zermatt guides are happy to fill up half a day by a scramble to the summit.

horn. In ascending from the Riffelberg, you leave the Riffelhorn on your right, and mount, sometimes over snow, but more often along a kind of hog's back of immense loose stones, the magnificence of the prospect increasing with every step of ascent.

The same points may also be gained directly from Zermatt, by crossing the stream of the Findelen glacier, and mounting the ridge—which divides the Findelen from the Gorner glacier—from the north side. H. and I climbed it, on this side, the day after we had crossed the Allelein glacier, in 1852. We set out about ten, and fancying ourselves perfectly fresh, indulged in a very ambitious pace at first; but when, after about an hour and a half's easy climb by a good path, we came to a stiff ascent over broken ground and loose stones, we began to recollect our sixteen hours' walk of the day before, and to find that our joints did not play quite so easily as usual; and when we got into the wild hollow called the Hochthäli, which lies cradled in the bosom of the mountain, at the foot of the ridge we were making for, we were not sorry that our friend, Mr. A., who was with us, was anxious to go very leisurely over the ground, and that by assisting him in his zealous search for *myosotis nana*, we could justify to ourselves the lazy pace which suited us best. We succeeded, after a long quest, in finding some specimens in seed, which was what we were looking for.*

* It is very difficult to preserve this beautiful plant in England. It may be reared freely from seed, and grows up pretty well, and blooms the first year. But it pines for the fresh air of the mountains; and our November fogs are fatal to it. A friend who resides in one of the highest parts of the Midland Counties, on the Cotswold Hills, told me that during the winter of 1855, he had only succeeded in keeping alive one sickly plant, which he feared would soon follow its companions.

I have given, in an appendix, a list of many of the rarer plants which are found in the neighbourhood of Zermatt. It is one of

After this, the clambering became excessively rough, over enormous blocks of stone, intermingled with masses of smaller débris. While making our way over these, we saw, to our right, three figures cut out against the blue sky, passing along the ridge of the Gornergrat. They proved to be our companion of yesterday over the Allelein pass, F., with some friends he had met at Zermatt. Passing over the blocks of rock, we came to a slope of snow, covering a similar collection of débris. It was steep, but compared with yesterday's work was nothing, and after three quarters of an hour's climbing, we gained the top of the Hochthäligrat, between ten and eleven thousand feet above the sea-level. The panorama was perfect. Monte Rosa lay to the south-east, separated from us only by the Gorner glacier at our feet, and his peaks appeared within easy reach. In fact, they are but some nine or ten hours' walk from here. Monte Rosa appears, from this point of view, to consist of a great collection of conical summits, none of them very steep, on most sides, at least, and presenting none of those fantastic and strangely irregular forms so often assumed by mountain tops. Above all the rest, however, juts up one rugged peak of rock, three or four hundred feet in height, on which the snow never lies, but which is

the very richest botanical districts in Switzerland. I cannot forbear, however, not as a botanist, but as a lover of the picturesque, mentioning the extreme beauty of the wild flowers on the Hochthäligrat. On the higher parts, near the summit, the hardier gentians grow with remarkable beauty and brilliancy, and their deep blue contrasts pleasantly with the white snow close to which they are found. The delicate little mountain milk-vetch (*oxytropis montana*) also blooms almost in the snow; lower down, the *leontopodium alpinum*, which, with its massive heads of downy blossoms, looks like a king among flowers, grows with remarkable profusion and vigour. It is one of the most beautiful of all Alpine plants.

often covered with a thin coating of the hardest and most slippery ice; so that to ascend it must be a task of the utmost difficulty and danger, only to be performed by the hardiest mountaineers, and practicable only by cutting the ice, or breaking the rock at every step. At this time, the summit had never been attained, except by two guides, one of whom (Matthäus zum Taugwald) was with us on this occasion; an account of whose ascent is given by Ulrich, in his interesting little book on "the Side-Valleys of Canton Wallis and Monte Rosa." In 1854, as I was going up the valley of the Visp, I met, near Stalden, three English gentlemen,* who had, a day or two before, accomplished this perilous feat, under the guidance of Ulrich Lauener of Lauterbrunnen, and who were the first travellers that ever gained that lofty peak. They told me the view was a panorama of the sublimest and most wonderful character. The summit was not large enough to contain the whole party at once, and on the side of Macugnaga the precipices were, as might well be supposed, terrible. They spoke of the descent of the peak as frightful. Subsequent attempts were made, and successfully made, in which the peak was approached from a different direction, and the difficulties proved less formidable. The expedition has now become one of the commonest of the more difficult excursions made from Zermatt. The Riffelberg hotel makes a capital starting-point, and it is now a rare circumstance for an ascent to fail. The last part of the ascent requires a good head, as the

* Messrs. Smyth, well known to Swiss travellers as most hardy and intrepid mountaineers, two of whom were of the party who, in 1855, ascended Mont Blanc without guides; an exploit of which a most modest and lively account has lately been published by the Rev. C. Hudson and Mr. Kennedy.

passage lies along an awful ridge, with a precipice on either hand, but otherwise it does not appear that any other difficulty of a very serious character exists. The expense, owing to the absence of the vexatious regulations of Chamouni, is trivial compared with that of ascending Mont Blanc. I learn, however, that the natives are beginning to learn the value of their market, that the price of provisions and other necessaries, as well as of guides, is rapidly rising, and that a further advance is threatened.

To the right of Monte Rosa are the precipitous Lyskamm, the fine twin peaks of Castor and Pollux, and the Little Mont Cervin, beneath which lies the pass of the St. Théodule. Here is a vast expanse of nearly level fields of ice and snow, crowning the swelling mass of pasture ground which rises above, and to the right of, the lower end of the Gorner glacier. The glacier itself, however, is hidden, in this direction, by the snowy ridge of the Gornergrat, the rugged summit of the Riffelhorn, and the mossy mound of the Riffelberg, over which shoots up high into the heavens, piercing the sky, the tremendous, indescribable peak of the Matterhorn, full five thousand feet above the enormous glaciers out of which it springs. On its sides, there is no great quantity of snow ; for the snow can only lie here and there on the ledges of the rocks. Beyond the Matterhorn, the Zmutt glacier, one of the most broken of those on the west side of the valley of St. Nicholas, overhangs the woods and green slopes beneath, and points out where a difficult and laborious passage may be effected, close under the Dent Blanche and the Tête Blanche, into the valley of Evolena. The mountains which run hence in one unbroken chain to the valley of the Rhône, including the lofty peaks of the Rothhorn, the Weisshorn and the Bruneckhorn

are not, with the exception of the Weisshorn, so lofty or so white as those on the eastern side of the valley, but between the precipitous summits of dark rock many glaciers pour down, and overhang the deep valley through which is cut the channel of the Visp. Throughout this valley, however, none of the glaciers, except that of the Gorner, descend so far down the mountain-sides as in most other parts; partly, no doubt, in consequence of the great steepness of their inclination. From the side of the Weisshorn, a few years back, a huge mass of glacier broke off, and descended with one fell swoop into the valley, doing immense damage in its destructive career. Between the two ranges which flank the valley of St. Nicholas, at the distance of nearly sixty miles, appears the great chain of the Bernese Alps, from the Jungfrau eastwards.

To complete the panorama, we saw, a little to the right of the upper Rothhorn, (a grassy mountain to the north of where we stood, and one of the finest points of view in the neighbourhood) the Alphubel, and the upper part of the glacier of Täsch—along which we could distinctly recognize the direction of our route the day before, and the very corner of rock where we had made our mid-day meal—the Rympsischhorn and the Strahlhorn. The Cima de Jazzi and the Monte Moro chain were covered by the much lower summit of the Stockhorn, which directly intervened.

We lay long on the rocks which jugged out from the snow at the top of the Hochthäligrat, basking in the sun, and enjoying the wild magnificence of the scenery, over which, from time to time, was cast a delicate mantle of wreathing cloud, hanging now upon one part, now upon another, now suddenly tossed up by a gust from below, far above our hori-

zon, now sinking low, obscuring all but some giant peak which rose like an island from a sea of foam, and presenting us with continually new and startling changes in the prospect. Instead of returning by the way we came, we descended directly upon the Findelen glacier, and following its course, reached, in about an hour and a half, the bridge by which we had crossed the glacier torrent in the morning, whence an easy half hour, by the track we had taken to ascend, led us pleasantly across the meadows to Zermatt. Both in ascending and descending, we saw many traces of marmots, with which the pastures of the Hohthäligrat evidently abound. Frequently, we surprised the timid little animal feeding, or at play, upon the grassy slopes; and there certainly could be no difficulty in procuring an abundant supply, were the animal sufficiently appreciated to make it worth the hunter's while to engage in the chase.

Another very interesting excursion from Zermatt is to the Schwarzsee, on the side of a spur of the Matterhorn, which runs from beneath the peak, towards the bottom of the Gorner glacier and the head of the valley of St. Nicholas. As far as Platten, you follow the pleasant path which leads to the St. Théodule, then, diverging to the right, you clamber up a steep mountain of turf and rock. Two hours of easy ascent from Zermatt bring you to a place where

“A little lake where never fish leaped up,
Lies like a spot of ink upon the snow.”

This sheet of water, which is dignified by the name of the Schwarzsee, is a kind of tarn, of dark and dirty ice-cold water, the drainage of the glacier;*

* A friend tells me he found the waters of the Schwarzsee

but the interest of the excursion consists in the excellence of the spot as a point of view. You see, of course, the Monte Rosa group, from here as from the Hochthäligrat, but now from a point in the circumference, instead of from the centre of the circle. Some friends of mine who visited this spot on the 9th September 1854, witnessed, on the ascent, a very beautiful and unusual phenomenon. The lower part of the valley of Zmutt was filled by great beds of feathery mist, and gazing down upon these, about nine in the morning, with the sun at their backs, each spectator beheld his own shadow on the mist, surrounded—framed as it were—by a perfect circle of rainbow, the prismatic colours being very bright and distinct.

By ascending about an hour and a half more, first, up a steep slope of stunted herbage, then, over the moraine and along the edge of a glacier, then, climbing almost perpendicularly up a precipitous ridge of rocks, and lastly walking along the ridge with the precipice on one side, and a steep slope of snow on the other, you reach the highest point of the Hörnli, whence the panorama is still finer than from the Schwarzsee. You are here at the very base of the pinnacle of the Matterhorn, which rises in awful majesty above your head. It is hard to say which view is the more interesting; that from the Hörnli, or that from the Hochthäligrat. The return may be varied, by leaving the Schwarzsee on the right, and descending straight down the steep slopes of loose, slaty *débris*, alternated by occasional patches of snow, to the green pastures which border the upper part of the valley of Zmutt, and from which a closer view can be had of the glacier of Zmutt, than from the

clear as crystal. I suppose they vary in this respect, as they are certainly dirty enough sometimes.

greater elevation of the Schwarzsee or the Hörnli. From these slopes, when I visited them, we obtained an excellent view, as far as the Stockhorn, in the centre of the Zmutt glacier, and even thought we could detect some slight inaccuracies in Studer's excellent map; but above that peak, all was enveloped in impenetrable mist. We were able, however, with the telescope, to reconnoitre some of the most formidable difficulties of the passage of the Col d'Erin, and to make out the manner in which they must be approached.

The Zmutt glacier is a very curious one. For some miles, it is completely covered with débris and moraine, from one side to the other, so that it looks like a vast heap of stones, and presents no appearance whatever of ice. This state of the surface commences, apparently, not far below the Stockhorn, but we were unable, from that distance, to discover in what manner it began, or what was the cause. Higher up, the glacier is quite white and dazzling, and the transition from its state of purity to its state of dirt appeared to be marked by few degrees. It would be interesting to investigate this remarkable phenomenon, the satisfactory explanation of which might throw some additional light upon the nature of glacier motion. The only explanation, so far as I know, that has been attempted at present, is suggested in Professor Forbes's thirteenth Letter on Glaciers p. 17. He thinks such phenomena may be accounted for by supposing the glacier in passing over a portion of its bed, to meet with a rock of such a character as to be easily disrupted, and to break off fragments, which by the upward and outward motion of the ice, as shown by the *frontal dip* of the structure, are borne onwards till they reach the surface. The suggestion is offered by Professor Forbes, as a suggestion merely,

requiring confirmation, not as the result of investigation directed specially to the subject.

We made our way down towards the torrent of the Zmutt, and found a well-defined track, overhanging it at a considerable distance above the stream, which is heard, though not always seen, thundering amongst the rocks and boulders below. It is a most beautiful path through pines, beeches, Scotch firs, and all manner of mountain trees, with a rich undergrowth of bilberry bushes and shrubs; with a profusion of wild flowers, scattered about on every side and making the sombre wood gay with their bright and delicate hues. We had observed, as we ascended from Zermatt in the morning, that above a certain very clearly defined limit on all sides of the valley, the larches and firs were quite black—far darker than below the line. We could not make out the reason, till we got among these trees, and then we found it to be owing to a dark, hairy lichen, (*alectoria jubata*) which grew upon the trees, and hung down, in rich masses and festoons, from the branches.

From the abundance of the shade, the height of the valley and the northern exposure of its right flank, the wild flowers bloom longer and later than in most other places. I have found here in bud, at the very end of August, in a year of unusual heat, sprigs of *rhododendron ferrugineum*—the plant which, by a misnomer, is often called the rose of the Alps. There is a real Alpine rose, (*rosa alpina*) a much more beautiful flower; whereas the rhododendron is very far removed from a rose. For days before I met with this specimen, I had seen none, except in seed. On the opposite side, the rocks are high and steep, and sprinkled with a scanty vegetation. We heard the marmots, piping their shrill whistle continually,

as they fed or played about in the sunshine, across the torrent; but, even with the telescope, we could not distinguish them from the brown rocks, with which their colour matches so well. Presently, we reached a bridge, at a great height above the stream, which was foaming beneath, through a deep and narrow rift in the rocks, and crossed to the sunny side, where we found an immense number of most beautiful butterflies, conspicuous amongst which was always the Apollo, with his bright, clear wings and large red spots. There were also some very large ones, of a dark brown, with velvety wings, and of striking beauty.

The passage of the Col d'Erin, from Zermatt to Evolena, ascending by the glacier of Zmutt to its junction with that of Ferpêclé, close under the peak of the Tête Blanche, and descending by the latter glacier into the Val d'Herins is probably one of the most difficult among the Alps. As far as scenery is concerned, it would, beyond all doubt, be best taken from Evolena to Zermatt, as, during the whole of the descent, you would have magnificent views of the Matterhorn and the basin of Monte Rosa, in front; but there are serious obstacles in the way of the enterprize; the chief among which is the horrible accommodation which the whole valley affords.

From the great group of mountains which lie between the valley of St. Nicholas, on the east, and the Val de Bagnes, on the west, three glacier torrents descend, and discharge their waters into the Rhône, near Turtmann, Sierre and Sion, respectively. If either of these streams be followed towards its source, it will be found to flow nearly north and south, and two—those which flow into the Rhône at

Sierre and Sion—like the Visp, fork off right and left as you ascend the stream, at a distance of a few hours from their mouths. All of these valleys are known to hardly any one but their inhabitants, and although they lead amongst the wildest and grandest scenery of the Alps, they will probably long remain almost unexplored. The valley which leads southwards from Sion is the least unfrequented, and the few travellers who have ventured to penetrate its arcana are unanimous in their account of the filth, ignorance and rudeness of the inhabitants.

In 1853, myself and a friend resolved to ascend the last-mentioned valley, for the purpose of passing the Col d'Erin to Zermatt; we determined, after due inquiry, to take up with us, not only a stock of provisions, (for, probably, goats' cheese and black bread would be the best fare of the country), but a mule laden with straw, on which we might pass the night, under the shelter of some rock, as every one told us the filth and vermin we should encounter in any of the huts of the peasantry would be such as we should never forget. We made all our arrangements, but bad weather prevented us from carrying them out; and I only mention the fact to show the character of the valley. The Val d'Anniviers, which runs southwards from Sierre, and the parallel valley of Turtmann have probably never been explored by a single amateur,* and, from what little I could learn of them,

* This was written in 1856, and so far as I can learn, was then strictly correct. I believe both of these valleys were visited last autumn (1857) by two or three travellers; but I have heard few particulars respecting them. Their testimony, I am told, is unanimous as to the beauty and grandeur of the scenery. I have heard the glaciers of Turtmann and Zinal spoken of as two of the finest in Switzerland.

would appear to be still more barbarous than the neighbouring valleys of Herins and Heremence, whose united streams pour themselves into the Rhône, a mile or two above Sion. Balmat told me that he once had occasion to penetrate a few miles up the Val d'Anniviers, many years ago, and found the natives living in a state of nudity and filth, almost too gross and disgusting to relate.

In one of the clusters of miserable habitations in which they were congregated, he found in each hut a table, consisting of an unshaped block of wood, black and grimed, reeking with the accumulated filth and abominations of years, in the top of which were scooped a number of round holes corresponding to the number of the household. Into these pleasing receptacles were successively emptied soup, bread, cheese, milk, and anything else that went to make up the meal, which was eaten out of these holes by the aid of a wooden spoon. Probably, if a traveller should ever arise, bold enough to encounter the discomforts of exploring such places, he will find, in the rich mines of unknown and unappreciated scenery which lie buried among their recesses, treasures equal to any which the whole range of the Alps affords. It must be very long, however, before they can present any attractions to the mass of travellers. The Col d'Erin *may* be accomplished by starting very early from Zermatt, or camping out at the foot of the Zmutt glacier, without the necessity of passing a night in the Val d'Herins; but it would be a very long day's journey to reach Sion, which is the first decent halting-place. It is, as I have said, a difficult, if not a dangerous pass, and should by no means be attempted without guides and ropes. A Scotch gentleman made the passage by himself, in 1853,

from Zermatt; but the exploit was a mad one, and is mentioned by way of warning rather than of example. The upper part of the glacier of Zmutt abounds in hidden crevasses—the most formidable, because the least apparent, of all the dangers of the glaciers.

CHAPTER X.

PASS OF ST. THÉODULE, FROM ZERMATT TO CHATILLON.

A peasant of the Alps—
Thy humble virtues, hospitable home,
And spirit patient, pious, proud and free;
Thy self-respect, grafted on innocent thoughts;
Thy days of health, and nights of sleep; thy toil
By danger dignified, yet guiltless. BYRON.

Within a little month,
He lay among those awful solitudes,
Taking his final rest. ROGERS.

Ascent to the Glacier—A fantastic Nook—Taking the wrong Track—Dangerous Crevasses—Carelessness of the Zermatt Guides—Specks on the Snow—A Sea of Mist—A dreary Abode—An extraordinary Character—His tragical Fate—An icy Tomb—Val Tournanche—Short Commons and dirty Quarters—A long Walk to Breakfast—Chatillon—Remarks,

THE pass of the St. Théodule,* or, as it is also called, the Mont Cervin, or the Matterjoch, leads from Zermatt, to Chatillon in the Val d'Aosta, directly across the snowy ridge which walls in the end of the valley of St. Nicholas, and which connects the summits of the Matterhorn and the Breithorn. The highest point is more than 11,000 feet above the

* See the map at p. 106.

level of the sea, and commands, in fine weather, a wide and magnificent prospect over the mountains of Piedmont. The chief attraction of the pass, however, lies in the admirable points of view it affords of the great glacier basin of Monte Rosa, and still more in the proximity of the Matterhorn, whose awful peak rises abruptly out of the glaciers which skirt the pass, towering to the height of between four and five thousand feet above the surrounding level. It is a pass of no great difficulty, though the way lies for many hours across the glacier; but it is more dangerous than is commonly supposed, and more precaution should certainly be exercised than the guides of Zermatt are often willing to take.

We started from Zermatt, to cross the St. Théodule, at a quarter to five o'clock, on the 14th September, 1852, three days after our passage of the Allelein glacier, recorded in a former chapter. Our party consisted of Mr. A., H., myself, and a gentleman who wished to accompany us to the summit, and then return to Zermatt. Our friend, the student of theology, went with us, to return with this gentleman, and we had engaged a well known guide of Zermatt to take us into the valley on the other side. About half an hour after leaving Zermatt, the road, winding through pleasant woods and meadows—with the Visp on the left, foaming madly through its rocky bed—crosses the torrent of the Zmutt glacier, over which lies the difficult passage by the Col d'Erin to Evolena. Here, you ascend rapidly for some little distance, passing through a cluster of huts called Platten, whence the path bears away to the left, and approaches the rocks which flank the Gorner glacier, of which you have an excellent view.

This glacier has evidently been of much greater extent in former times, for the rocks on either hand

of its course are very much polished and deeply striated. Seen from this point, the lower part of the glacier displays admirably the effect produced on the direction of the crevasses, by obstacles in the way of the icy current. It flows down rather diagonally, towards our left, as we stand looking up the glacier—towards its own right bank. Near the bottom, it is borne directly against a shoulder of rock projecting from the precipitous wall which forms the right, or north-eastern, side of the channel. The crevasses, at this point, run nearly at right angles to the direction of the flow, being, of course, rather curved outwards in the middle of the glacier; but as, at this shoulder, one part of the stream meets with the opposing barrier of rock, while the rest of the current does not encounter the same obstacle, the latter moves faster than the part near the rock; and the ice moves faster and faster, as it is farther removed from the opposing object; especially, as the left part of the stream—that to our right, as we look down upon it from the grassy knolls near Platten—is not far from a ridge of rock in the glacier, over which it falls towards the valley below; and it is, therefore, unsupported on this side. Consequently, the crevasses appear to radiate from the projecting rock, till they have changed their direction by nearly a quarter of a circle. The crevasses, which were nearly at right angles to the direction of the glacier, become, below the shoulder, nearly parallel to it. In passing this spot, the following year, I found a very great increase in the size of the glacier; much greater, as it seemed to me, than the increase either of the Fée, or of the Allelein glacier.

The ascent presently becomes considerably steeper, and after a while, you pass beneath, or across, a part of the terminal moraine of the Furgge glacier, (not,

of course, the same Furgge glacier that was mentioned as near the head of the valley of Saas) which lies close under the precipices of the Matterhorn; and then, turning half round towards the left, a few minutes of very steep and stony climbing bring you to the brink of the glacier. The whole of the ascent from Zermatt is, for a pass of this order, the easiest and pleasantest I know. This part, however, ought to be accomplished in early morning, as it would certainly be very hot, later in the day. We went slowly, on my account, as I had been very unwell the day before; but we reached the glacier before eight o'clock, after three hours of pleasant and gentle exercise. We found a wild recess, exposed towards the north-west, but curiously sheltered on the south and east, by the moraine of the glacier, and by a high wall of rock, capped with snow, which melted in the day-time, and trickled down into a shaded nook, whither the sun's rays never penetrated, and where it froze again into long, clear, transparent icicles, which hung in fantastic fringes and festoons on the rocks around. Here we rested for a few minutes, and refreshed ourselves with a little bread, soaked in the sparkling rill which stole along the bottom of this secluded little dell. Just before arriving here, we found a quantity of the reindeer-moss, (*lichen Rangiferinus*) growing on the mountain side. A small bit of this plant, carried in the mouth and sucked, is one of the best things to allay thirst or stay hunger, when on a mountain excursion. It is slightly bitter, but not unpleasantly so, and very nutritious and *fortifiant*.

Some friends of ours had left Zermatt by this pass, two or three days before, and our guide had been felicitating himself on the assistance he should derive from their footsteps. H. and I started off in advance of our party, and, after a few minutes on the snow,

came to a recent track, which we at once concluded to be the footmarks we were in search of. It led nearly south-west, parallel with the flank of the Matterhorn. We were rather startled, however, to find, after about half an hour's walk, that the marks led amongst a number of fearful crevasses, half hidden by the snow; and while we were considering what course we should take, we heard the Zermatt man shouting at the top of his voice, “Zurück! zurück!” (back! back!) and presently he came panting up, and told us we had stumbled on a false track, made some days before by a guide from Visp, who was imperfectly acquainted with the way, and had taken the traveller he professed to guide, by a fearfully perilous route, through a perfect maze of deep and treacherous crevasses. As to the danger of the route, there could not be two opinions; but we strongly suspected it was put upon a Visp man, in order to impress upon the minds of travellers, that the only chance of safety lay in patronizing the native talent of Zermatt. Our man now struck off to the left, and led us in a direction nearly at right angles to our former course. Indeed, the only safe plan in crossing the St. Théodule, is to keep well to the left from the moment you enter on the snow. By so doing, you avoid all the worst parts of the glacier; but it is not the direction which one would choose for oneself; the tempting course is that of the Visp man, which looks like the best and shortest way across the ridge. We had gone much too far to the right, before we turned back; and, had our guide acted prudently, he would have made us retrace our steps to the edge of the glacier, before taking the true direction. As it was, we cross-cut to the right place, and, in so doing, walked over more than one hidden crevasse, on bridges of snow. Once, the guide struck his stick

right through the snow, and, working out a hole, disclosed to us a terrible chasm, apparently of unfathomable depth, and only covered by the crust of snow on which we stood. As we were not tied together, this was very dangerous; but our guide seemed to care little what risks we ran, so long as he had not the trouble of carrying ropes.

Had Balmat or the curé been with us, such a thing as dispensing with ropes would not have been thought of for a moment. The curé would probably have replied to any proposal of this sort, as he did to one of our party, when we were entering on the Allelein glacier; "As you please, gentlemen; but, for my part, if we are not tied together, I don't go a step further." But many of the guides of Zermatt are reluctant to take the trouble of carrying ropes; they think people often pass safely enough, without them, and they habitually neglect such precautions as every prudent man ought always to take, on a long snow-clad glacier like this. One of the gentlemen whose tracks we were seeking told me, a few days afterwards, that on this very pass he fell into a hidden crevasse, and was only saved by the readiness and activity of Zachary Cachat, whom he had engaged, on F's. recommendation, at Zermatt, and who caught him by the collar, when he was already up to his shoulders in the crevasse.

Having gained, at length, the real footsteps of our predecessors, we ascended, slowly and gradually, in their track, for two or three hours. Here and there, are gentle undulations in the surface of the glacier, one of which was deep enough to conceal, for a considerable time, three or four little black dots we had seen descending towards us from the summit of the pass, reminding one, as they specked the stainless surface, of flies creeping across a whitewashed wall.

We got, every moment, new and glorious views of the Matterhorn, of the vast fields of snow which encompassed us in every direction, and of the great peaks which towered above them—the Breithorn, Monte Rosa, the Strahlhorn, and many more; and every time we looked round, we beheld the solemn range of the Bernese Oberland—a background worthy the rest of the picture. The sky was without a cloud, and of that deep azure hue which we are apt to speak of as the peculiar characteristic of an Italian landscape.

On reaching the top of a gentle swell, we suddenly found ourselves almost within hail of the figures that had been, when last we saw them, but specks upon the limit of our horizon. They turned out to be the party of a friend of the gentleman who was accompanying us to the top, and who thus strangely encountered an acquaintance in the midst of that icy desert. This traveller was escorted by no less than three guides. If in the multitude of counsellors there be safety, he certainly ran no risk; but although he had accomplished two thirds of the way across the glacier, he was in a state of great nervousness and alarm. He had heard, on the other side, the most exaggerated accounts of the horrors of the pass, and had been told—what was quite true—that a man of the country had perished in a crevasse, on the Italian side, not long before; and, not being familiar with the glaciers, he had endeavoured to secure safety in a numerous array of guides. Strange to say, the only precaution which really might have availed him, that of ropes, was, as usual, forgotten or neglected. He had engaged one guide at Chatillon, but, before he reached Val Tournanche, began to entertain suspicions, (well founded, I have no doubt,) as to his knowledge of the glacier, and

had therefore retained two more at Val Tournanche—and he was now accompanied by all three. Our guides proposed to effect an exchange of “fares,” to which we assented, and having, with some difficulty, satisfied our friend of the capabilities of our guide, and the impossibility of mistaking the track, we bid him farewell, and left him to pursue his way to Zermatt with our guide, while his three men turned back with us, and the theological student and his employer accompanied us as far as the top of the pass. But, alas, for the vanity of human hopes! Brilliant and cloudless as the sky was, on the Swiss side, we found, the moment we reached the summit, a boiling sea of mist, continually surging up from the Italian valleys, and as continually hurled back by the strong north wind, and tossed up hundreds of feet higher than where we stood, wreathing itself into a thousand quaint and ever-changing shapes, and forming a vast amphitheatre of cloud, of which our position was the centre. We could see nothing beyond the great semi-circular basin of glacier which we were about to descend, except when, for a moment, the wind blew with more than common strength, and, bearing back the tide of vapour, gave us a glimpse of the grassy ridges which fall away from the glacier into the valley beneath, and of sunlit peaks and shining glaciers, apparently poised in mid-air, half way between heaven and earth.

We reached the summit of the pass at a quarter to eleven, six easy hours from Zermatt, and here we met with a most singular character. On a spot slightly sheltered by some rocks which jut up from the surface of the snow, was pitched a wretched tent, about ten or twelve feet long, and six or seven high, inhabited by an old man and his wife, who, during the summer months, dwelt at the crest of the Col,

and in this frail and dreary abode braved the terrors of the tempest and the snow-storm. They supplied us with very fair bread and cheese, and some thin, sour wine, besides which they had the universal "cognac" for those who might prefer that cordial. De Saussure's sojourn of seventeen days upon the Col du Géant sinks into insignificance, when compared with the courage and endurance of this intrepid pair. The man pointed out to us, with much pride, a rude structure, built of loose stones, which it was the labour of his days to rear, and which, when finished, was to contain four bed-rooms. It was already half way up to the first floor. This chalet was to be dignified with the title of an hotel, and was to bear the appropriate title of the "Bouquetin."* He was a bronzed, weather-beaten old fellow, with a grey beard falling over his breast, and wore a long drab coat, reaching to his heels, and a goat-skin cap which made me think of the pictures of Robinson Crusoe. His features were very peculiar—high cheek-bones, with a flat face, a pug nose, and a keen grey eye, as bright and sharp as a hawk's. He was a tall, well-made man, as straight as an arrow, with a majestic bearing, as if he were the monarch of that wild waste of everlasting desolation. He spoke very good French—a rare accomplishment in these parts, and his language and ideas were far beyond what is generally found in men of his rank and mode of life.

After resting ourselves, and chatting with the

* The steinbock, or mountain-goat of the Alps, an exceedingly rare animal, with immense horns curved back towards its shoulders, very wild and untameable, and far less often seen than the chamois. In most parts of Switzerland it is extinct, or very nearly so. It is least rare, among some of the more unfrequented parts of the Savoyard and Piedmontese Alps, south of the main chain. Some fine specimens of this curious animal are to be seen, stuffed, in the Museum at Berne.

old man and his wife for three-quarters of an hour, we took leave of our friend who was to return to Zermatt, and of his theological guide, and began to descend the glacier. We learned, as we were starting, that the old man was nearly out of brandy and some other necessities; to obtain a supply of which, he was obliged to repair to Chatillon, whither he was about to set off, leaving his wife alone in the solitude of this bleak and inhospitable desert, till he should return. We invited him to join our party, and he accordingly shouldered an empty keg, and nodding an adieu to his wife, who seemed profoundly indifferent about the matter, took his place in our line of march. We found him a perfect enthusiast about the glories of the scene from the top of the pass; indeed, he seemed almost beside himself on this point. The sunrise and sunset, especially the former, he described in glowing terms, and repeatedly exclaimed that, by building a shelter for those who otherwise could never witness this scene of transcendent glory, he was doing good service to mankind. I was surprised at the vigour and originality of his thoughts, and the force and elegance of his phraseology, both of which would have done credit to an educated man. In the course of the evening, while we were at Val Touranche, he came to us to beg a small subscription towards the expenses of building his house on the glacier; but we were satisfied that the object of his anxiety was far more the completion of his undertaking, and the gratification of the darling aim of his life, in making known to the world the glories of a sunrise on the Matterjoch, than the realization of pecuniary advantage from the speculation. "Messieurs," he said, "je travaille pour l'humanité;" and the light in which he considered himself was

that of a benefactor to his race. He proved an excellent companion, as he gave us much interesting information about the neighbourhood, and about the antiquities of Aosta.

I am sorry to add that his fate is believed to have been a tragical one. He told us that he intended to travel on foot to Paris during the winter, and to make his way thence to London, for the purpose of collecting the necessary funds wherewith to finish his house. It appears that late in the autumn of that year, or the next, (I forget which) he set off from Val Tournanche to carry out his plan, and that, from that day to this, he has never been seen or heard of. It is greatly feared that the little money the old man had managed to scrape together, and which he was believed to carry about him, had tempted some of the cowardly ruffians who have given so bad a name to the northern valleys of Piedmont, and that he was robbed and murdered, shortly after he started from Val Tournanche. The harmless and adventurous enthusiast has disappeared, and the cabin in the midst of the glacier remains as he left it, and will remain so until the violence of the storm has prostrated its walls, or some successor shall be found to inherit the old man's enthusiasm and love of nature.*

* I am told there is a doubt whether this story be true. One or two travellers have kindly written to tell me that they inquired in the neighbourhood, and had it contradicted. By others, I have had it confirmed. I give it, therefore, as it was told to me, and without vouching for its correctness. The different accounts given about this matter add another to the many proofs I have had, in common with every other Alpine traveller, that it is impossible to place the slightest reliance upon the information you get from the guides and peasants of many parts of Switzerland, unless you have some special reason for trusting your informant. I do not mean that they are always guilty of wilful falsehood; but they are, generally speaking, utterly care-

The central part of the glacier, on the Italian side, abounds in concealed crevasses, and it is necessary to keep to the right, and skirt its outer edge, in order to avoid them. This side of the pass is much steeper than the other, but the snow was pretty hard, and the walking very agreeable. About an hour after leaving the top, we observed, at some distance on our left, a pole planted upright in the ice, by the side of a crevasse. On inquiring what it betokened, we were told that it marked the spot where an unhappy wayfarer had perished, about a week before, in a deep and hidden crevasse. He was a farmer from Gressonay, who was crossing to Zermatt with a sheep, accompanied by a traveller whom he had undertaken to guide over the pass. He had taken a track of which the peasants avail themselves, with safety, during the months of spring, when the crevasses are but narrow, and the coating of snow thick and firmly frozen, but which, in autumn, is full of danger. He had advanced some distance on the glacier, when he stepped upon a treacherous covering of snow concealing a deep crevasse. It gave way, the moment he trod upon it, and he was precipitated to the bottom. The traveller could not see him, but could hear his call for help; the unhappy man, who was not much

less about truth or accuracy, and answer questions not with any regard to the facts, but according as their own interest, or the supposed taste or fancy of the questioner may dictate. There is certainly nothing intrinsically improbable in the story, as I have given it, and I have not heard from any one that the old man has been seen since 1854. The cabin he had begun has been taken possession of by other speculators, and two or three little rooms are now completed. Considering the extraordinary enthusiasm of the old man, it is very unlikely that, if he were alive, he would have abandoned the undertaking which seemed to be the darling object of his life.

injured, retained his presence of mind, and told his companion to retrace his way by their footsteps, and hasten with what assistance he could procure; "and pray for me," he added; "I shall need your prayers." The traveller stuck his alpenstock into the ice, to mark the crevasse into which his guide had fallen, and made what speed he could on his errand. It was, however, some hours before he was able to return with succour; when they arrived at the crevasse, all was still and silent as the grave; they called and called again, but no voice replied; the object of their search had probably expired, long before they reached the spot. It is difficult to exaggerate the terrors of such a situation, and the imagination shrinks from contemplating the feelings of the unfortunate prisoner within that cold and dreary dungeon, as his powers of endurance and vitality slowly gave way, and left him powerless in the chill embrace of death. Nearly thirty persons responded to the call for assistance, but they exhibited a strange apathy, or want of courage; for though well supplied with ropes, no one appears to have ventured to descend into the crevasse, and when we passed and saw the pole, a dark line against the sheeted snow behind, no attempt had been made to recover the body from its icy tomb.

We quitted the glacier about one o'clock, and made a very rapid descent, for nearly an hour, over most delightful turf. We found very few wild flowers, compared with what I had expected to find on the Italian side of the pass. Probably, with this southern exposure, the most part were already in seed, and therefore did not strike the eye. We found forget-me-nots in some abundance, and great quantities of that delicate Alpine flower, the *bupleurum ranunculoides* (hare's ear). About half past two, we reached

the chalets of Breuil, where we were able to procure an excellent cup of coffee.* From Breuil, we descended for an hour and a half by the side of the glacier torrent, which in one place was actually covered in by the stones and earth which had settled in the narrow rift—varying from three or four inches to as many feet, in breadth—through which, at the depth of fifty or sixty feet, it thundered on in its furious course; and, at length, shortly before four, on turning an angle of the road, the spire and roofs of Val Tournanche appeared close at hand, and our day's work was done.

In the upper part of the valley, the rocks on our right had been fine and bold; but about Val Tournanche the valley expands very much, and, on the left, is wide and open. It is here not unlike the lower part of the descent from Capel Curaig to Beddgelert. Everything points to a great change of climate; squirrels are seen leaping from bough to bough, and running from rock to rock; the fir and the pine have given place to the chesnut and the beech, and the early fall of the leaves proclaims the power of the fierce autumnal sun.

Val Tournanche boasted no inn,† but the curé was in the habit of receiving strangers; so we made for his house. Happily, we saw him only out of the window, working away, like a common labourer, at some repairs which were being done to the church. I say, happily, for he was the dirtiest specimen of humanity I ever beheld, with a huge goître hanging from his neck. His house was equally

* A small inn has now been built at Breuil. Last year (1857) I heard, from every traveller I met who had been there, a very bad account of the place, which was represented as remarkable for discomfort and extortion.

† There is one now, but I know nothing of its character.

dirty; the dust lay to the thickness of a sheet of paper on everything; and, worn and travel stained as our garments were, which had borne the brunt of an Alpine campaign, they seemed far too good to soil, by sitting down in so much dirt. However, as there was no help for it, we set to work to make things as clean and tidy as we could, for the evening. We had three rooms opening out of one another. The middle room had a bed, supported on three boards laid on tressels. The table was a board, also on tressels; there were four rough wooden chairs; and this was literally all the furniture of the room. In each of the side rooms, which opened out of this, were a bed, a chair, a table made of an unshaped block of wood on three legs, and a pie-dish. The floors were so thick with dirt, that your boots left foot-marks as you walked across the room; and everything you touched soiled your hands. We could get scarcely anything to eat—a serious evil after eleven hours' walk. A chicken was brought, but so small, skinny and raw-boned, that there were not half-a-dozen good mouthfuls upon him; and the only bread consisted of long sticks of biscuit, a most unsubstantial kind of fare, of which, moreover, there was but a scanty supply. The only good articles of food were some eggs, but of these we could not procure more than two or three, and we went to bed hungry and tired. Fleas were seen, and we laid ourselves down in fear and trembling; but we got off much better in this respect than we had any reason to hope.

As there was no temptation to loiter in such quarters, we rose in good time; and, slipping a few of the fragments of the "long breads" into our pockets, shouldered our knapsacks, and sallied forth, after settling with the housekeeper, in the early dawn of a clear

autumnal morning. We observed that a great cross near to the curé's house bore, as is usual in Piedmont, no image of Christ, but only representations of different objects connected with the last scenes of that solemn history; the hammer, the nails, the sponge, the javelin, the reed, the whip, the cords, the cup, the lantern, the cock, and so forth.

We had been told that Chatillon was within a tolerably easy walk of Val Tournanche, and, accordingly, had started without a breakfast, depending on Chatillon for that meal; but we found we had been much deceived; and it took us three hours and a half of very fast walking to reach that town. The descent was rapid, and the valley, for the most part, monotonous, resembling the Val Anzasca, wide, pretty and well wooded.

As long as the sun was behind the range of mountains on our left, the temperature was cool and pleasant; but from the moment he rose above them, about half past six o'clock, the heat became very great; and, hungry as we were, we all felt the walk a little too long to be pleasant before breakfast. There was not a breath of wind stirring; so much so, that in one place, where we met a flock of goats being driven to their daily pasturage, the air was scented with the fragrance of their recent presence, for nearly a mile after we passed them. About two hours below Val Tournanche, we came upon some very fine remains of a Roman aqueduct, carried along the face of the rock, five or six hundred feet above the valley, over arches of very solid and substantial masonry, which appeared as durable as the rock itself. We had been bidden to look out for it by the old hero of the summit, who had been lamenting, most pathetically, the carelessness and ignorance of the people about these remains of antiquity. Here

we looked back, and saw, for the last time, the stupendous point of the Matterhorn, apparently overhanging the mountains beneath, and covered along every ridge and ledge with pure and dazzling snow. In front of us were some fine snow-clad peaks which we did not know.

Shortly before reaching the end of the valley, we passed through rich woods in which the chesnut, the cherry, the walnut and the beech predominated, and which afforded a welcome protection from the increasing heat of the sun; and soon after eight o'clock, we emerged upon the beautiful Val d'Aosta, and, turning to the left over a fine bridge, below which are the remnants of two former bridges, one beneath the other, we went down the principal street of Chatillon—as filthy a street as I ever saw or wish to see, with the water running down the middle in an open channel, and being carried thence direct to a fountain in the street, where, because it issues from a pipe in the orthodox fashion, it is supposed to be clean and fit to drink, and is used by the inhabitants for that purpose. We asked for some water at breakfast, and we saw the waiter repair to this source to fetch it. We put up at the “Trois Rois,” where with infinite difficulty, and by dint of alternate coaxing and scolding, we succeeded, between nine and ten o'clock, in procuring something to eat. I should not be doing justice to the landlord,* if I did not add that his incivility was only equalled by his extortion; as we found when it became necessary to bargain for the decrepid vehicle and miserable jade which conveyed us to Aosta.

The pass of the St. Théodule is one of the grandest excursions among the Alps, and at the same time one

* I do not know whether this inn is still in the same hands. There is now, I am told, one tolerable inn at Chatillon.

of the easiest. There is some risk, undoubtedly, without proper precaution ; much risk, with a bad guide. A slight deviation from the proper direction would lead into very formidable dangers ; and, as I have already said, I think the guides of Zermatt very much disposed to consult their own ease, by neglecting the obvious and effectual precaution of using ropes on the glacier ; but there is nothing like a serious difficulty, from one end of the pass to the other. It is even sometimes crossed by ladies, on mule-back. This can only be done when the snow is in a good state, and by starting early in the morning, so as to secure some hours before the sun is strong for the passage of the glacier, and even then, the animal is apt to slip and flounder, in a manner painful to himself and disagreeable to his rider. There would be no difficulty, at any time, in having a lady carried across in a chaise-à-porteurs, though six porters, at least, would be necessary ; or, if she were a good walker, a mule might be taken to the edge of the ice, and by a little previous arrangement, another might be engaged to meet her at the foot of the glacier on the opposite side. This would reduce the walking to about five hours ; and when the snow is in a good state, the walk over the glacier is neither fatiguing nor unpleasant, and many ladies could do it with perfect ease. On account of the scenery, it is perhaps rather better to cross from Val Tournanche to Zermatt than the opposite way ; but the guides of Zermatt are, generally speaking, better than those of the Italian valley. Pierre and Charles Immanuel Gorette of Val Tournanche are, however, good guides, and speak French, an accomplishment possessed by few of the guides of Zermatt. We found them attentive, intelligent and competent. Fifteen francs a man is the regular tariff for the pass, and a small gratuity is

expected. Unless more are wanted to carry baggage, one guide to show the way is enough for any number of travellers. Indeed, the stronger the party, the less need of additional guides, as they could help one another in case of accident. The only drawback to this excursion is the bad accommodation at Val Tournanche and in the Val d'Aosta, by which the pass must be approached or left. I have heard that a tolerable inn has been constructed at Val Tournanche since I was there; but the curé's house afforded as miserable accommodation as I have ever met with in the Alps.

The Val d'Aosta is the head-quarters of dirty inns and bad beds. It is one of the loveliest and most fertile valleys in the north of Italy; but is inhabited by a stunted race, afflicted with goître and crétinism, to an extent which contrasts painfully with the charms of the scenery. Among such a population, it is vain to hope for decency or cleanliness; and, as far as my experience goes, I have found the native innkeepers as dishonest as they are dirty. Last year (1857), a new inn (the Hotel du Mont Blanc), was opened just outside the town, by an old Chamouni guide, Jean Tairraz, which is a great improvement upon the previously existing accommodation. It is clean and airy, and the fare pretty good; the wine, however, was very indifferent, and Jean Tairraz appeared to myself, and to many other persons, to be a grasping and avaricious man.

CHAPTER XI.

THE TORRENTHORN, THE OESCHINEN LAKE, AND THE DISTRICT OF THE GHEMMI.

What, though th' ascent is steep, and rude the way ?
Let us ascend the summit, and look down !
Around ! above ! to Him whose home is thought.

ELLIOTT.

The snow-fed torrent in white mazes tossed
Down to the clear ethereal lake below :
And, high o'ertopping all the broken scene,
The mountain fading into sky, where shines
On winter, winter shivering. THOMSON.

Ascent of the Torrenthorn—Startling approach to a Precipice—
All the Alps at one view—A novel Paint-brush—The Ghemmi
—The Schwarenbach—A “ véritable Voleur ”—Glaciers of the
Wildstrubel—The Oeschinen Lake—Profusion of Wild Fruits—
Force of the Torrent—A freezing Bathe—Frutigen—Cordial
reception.

No visitor to the Baths of Leuk should fail to ascend, if possible, the Torrenthorn—a bold mountain rising abruptly at the head of the Maing Gletscher, which fills up the head of the valley to the east of Leukerbad, and lies in the hollow between the Torrenthorn, on the south, and the Great

Altels on the north. On the opposite side, the Torrenthorn slopes more gently down towards the valley of the Dala, a stream partly fed by the rivulets that have their sources in its grassy slopes. The path begins close to the Hotel des Alpes, and zig-zags up the steep pasture-grounds to the east,* till it gains the belt of trees above. Here, it turns to the right and winds, for a considerable distance, in a south or south-westerly direction, beneath the shade of thick and pleasant woods.

I have seldom seen a more beautiful wood-walk. The undergrowth of ferns and mosses is singularly rich and luxuriant. Great quantities of wild raspberries and strawberries grow near the path, and afford a grateful refreshment on a sultry day. Presently, the scene becomes wilder, and you have to make three or four sharp and steep zig-zags up the face of a little cliff, while below you the precipices fall away, far down towards the stream of the Dala. Here, it is advisable for a lady to quit her mule for a few minutes, as a slip would be awkward, and the path is bad. I was very much struck at this place, called the Wolf's Crag, with the beauty of the wild flowers, which clung in bright patches to the ledges of the rock, or trailed in elegant festoons over the surface of the cliff. Beyond, the wood was more open; and presently we came to a long line of low stone wall, through a gate in which we emerged upon a spacious and fertile pasture-ground, where hundreds of sheep and cattle were grazing about, or lazily chewing the cud, sunning themselves in the pleasant warmth of a bright September morning. These pasturages are of great extent, occupying a large

* In one of these upland meadows, we found a magnificent specimen of the *geum rivale*; almost as beautiful, though not so brilliant, a flower as the *g. montanum*.

part of the ascent, and as you have to make your way across them for nearly two hours, this part of the road is somewhat monotonous. In time, however, the grass became stunted and scrubby, and, at length, all vegetation ceased, and for the last half hour we zig-zagged up a steep slope, the surface of which was entirely covered by small loose pieces of some schistaceous stone, which splits off in flat, slaty fragments. This part of the route is something like a part of the ascent from Beddgelert to the top of Snowdon. We were upon a broad shoulder of mountain, falling away on the right, with a very rapid decline, on which were some extensive beds of last year's snow.* On the left, the surface was convex and dome-like, for a considerable distance, and appeared to terminate in a precipice, but as the path wound up the flattest part of the mass, and did not approach within many hundred yards of the limit of the convexity, it was difficult to say what lay beyond, and how far the convexity might extend. The zig-zags became gradually shorter, and the shoulder narrower, and at length we came to a rude deal table and form, fixed into the ground, which was strewed in every direction with unmistakeable traces of many a meal. The view had been very fine for some time past, but the bare black ridge in front of us still blocked up a considerable part of the horizon. At this table, my wife dismounted from her mule and walked forward. A few paces further, we found, to our surprize, that the ridge ended quite suddenly, in

* Near the snow, the *gentiana nivalis* was blooming beautifully. Many of the commoner sorts, such as *verna*, *bavarica*, &c., are found below, not far from here. I picked a pretty specimen of *ranunculus Pyrenaicus*. *Lichen nivalis* grows near the top; below the pastures I met with the delicate *gypsophila repens*. The *myosotises* were not plentiful.

a series of tremendous precipices, beneath which, in front and on the right, lay a vast "valley of desolation," covered for miles with a black deposit of barren débris, on which not a speck of vegetation was visible, while on the left, the great smooth expanse of the glacier of Maing, streaked here and there with a formidable crevasse, and edged nearly all round with a fringe of curious slanting masses of rock, all having the same inclination and the same form, and rising in lop-sided pyramids abruptly from the glacier. It was one of the most startling views I had ever beheld. We had not the least idea, a dozen paces before arriving at the edge, that the ridge was about to terminate, and the precipice was so sheer, that we sat down with our feet over its edge, and stones that we dislodged took one bound and were out of sight, till they rolled far into the valley below. We came so suddenly and startlingly upon this precipice, that it was some moments before we recovered from our surprise, and were able to look around us at the wonderful panorama which presented itself.

Across the glacier of Maing, the noble peaks of the Great Altels, the Balmhorn and the Doldenhorn rose sharply into the sky, at no great distance, separated from us by the head of the valley of the Dala, and guarded, in front, by the stupendous crags and precipices of the Ghemmi. Turning somewhat to the right, the eye wandered amongst a maze of glaciers and peaks, which included the long line of the Bernese Alps. It required, however, some investigation to make them out by name, as the forms with which I was familiar, on the north side of the chain, are very different from those which the spectator gazes on from the south and west. The Jungfrau, the Finster Aarhorn, Schreckhorn and Wetterhorn, were concealed by the massive group of the Aletschorn,

in front of which was seen the head of the Lötsch glacier; the valley of that name being hidden by a long range of green slopes running from the back of the Maing glacier, down upon the valley of the Rhône. The most conspicuous of all the mountains of the Oberland was the Bietschhorn, whose summit rose high into the heavens, with a solemn grandeur, inferior only to that of the Matterhorn, as seen from the neighbourhood of Zermatt. This is the mountain I have elsewhere mentioned as forming a fine object in the descent from the valley of Fée to Saas, and which lies between the principal chain and the valley of the Rhône. It was considerably nearer to us than the other mountains in the same quarter, and it is one of the finest objects in this extensive and splendid panorama.

Further still to the right, at a distance of about thirty miles, was the broad group of the Monte Leone, showing where the pass of the Simplon crosses into Italy. A little further yet to the right, in what artists would call the middle-distance, was a long broken line, stretching from east to west, across nearly a third of the circle of our horizon, with a thin blue haze hovering above it, towards which the descending outlines of the mountain ranges sloped on either side. It is hardly necessary to say, that this marked the position of the valley of the Rhône, and was a great assistance in determining the identity of the numberless peaks and mountain groups which formed our view. A little to the west of south, the Rhône takes a slight bend southwards, which brought it directly into a line with us; and we looked down the whole extent of that beautiful valley, from Sierre—where the Rhône first comes into view, a broad and conspicuous river—nearly to Martigny, long before reaching which town, it has dwindled to a

mere silver thread, meandering gracefully between rich and verdant banks.

The several lines of the Visp Thal, the Turtmann Thal, and the Val d'Anniviers, or Einfeld Thal, could be distinctly traced, mapping out the mountain ranges upon the distant horizon into several groups, the first of which comprehended the stupendous range of the Saas Grat, from the Balfrein to Monte Rosa, and the continuation of the chain to the Matterhorn, whose great summit, however, was, from this point of view, surpassed in sharpness and majesty by the needle-like peak of the Weisshorn—a mountain of nearly equal height, and which is often mistaken, in distant prospects, for the Matterhorn. From the Dom to the Matterhorn we gazed upon a line of snowy summits, not one of which was less than fourteen thousand feet in height. Monte Rosa struck me from here, at it did from the Col du Géant, and afterwards from the Wetterhorn, as distinguished by an exquisite symmetry and grace, which no other neighbouring summit possesses, and which made us doubly regret that an untoward circumstance had prevented our reaching Zermatt, this summer. Had it been evening, one might say,

“ How faintly-flushed, how phantom-fair,
Was Monte Rosa, hanging there—
A thousand shadowy-pencill'd valleys
And snowy dells in a golden air.”

Between the Turtmann Thal, and the Einfeld Thal was another long stretch of snowy peaks, of which the loftiest were the Dent Blanche and the Mont Combin, at either extremity of the line; and to the west of the latter, beyond the Rhône, a great block of inferior mountains, comprehending the chains bordering upon the lower part of the Val d'Herins,

and the smaller valleys which run southward from the valley of the Rhône; while,

“Far, far above, piercing the infinite sky,
Mont Blanc appears;—still, snowy and serene.”

To the west of where we stood, the range of snowy tops north of the valley of the Rhône, from the Dent du Midi to the Wildstrubel and the Lämmern—fronted by the imposing wall of crags which flank the valley of the Dala and seal its upper end with the apparently impassable barrier of precipices, up the face of which that marvellous work, the Ghemmi pass, is carried—complete the panorama, which is the most magnificent, save one, (that from the Wetterhorn) that I have ever seen. It certainly surpasses the view from the Faulhorn, although the back of the Bernese range is far from being so fine as the north side, as in this chain, no less than in the great southern chain of the Alps, a much steeper and more precipitous face is exposed to the south than to the north: less snow, consequently, hangs on the slopes, and what does lie is more rapidly melted, so that this side of the chain is always blacker, as well as more precipitous and rugged, than the northern declivities. All the principal mountains in Switzerland are beheld at once from the same spot, and the eye ranges over a sea of summits, of the most prodigious extent and variety. The intermixture of crag and snow and green pasture-land is singularly attractive and pleasing. Mont Blanc, which is the remotest object in the view, is hardly more than sixty miles distant, and Monte Rosa but forty, so that every part of the panorama is seen, on a clear day, with admirable distinctness. There is but one thing wanting to make the picture perfect,

namely, water; not a single lake is to be seen in any direction.

We stayed three hours at the top, for my wife to sketch. Fortunately, we had taken the precaution to bring a phial of water with us, for we should have found none there, without descending half an hour to the beds of snow we had passed, and melting some of the snow: but an unexpected difficulty occurred; the camel's hair brush had dropped out of the sketching case and was gone. It would be impossible to put in the snow, afterwards, from memory; for many of the peaks were strangely flecked and dashed with white, in a wild, irregular way. In this emergency, I snipped off a bunch of my own hair, and cutting a little splinter of deal from the table, with the help of a piece of silk my wife had in her pocket, manufactured a paint-brush, which, if not so good as the one that was lost, at all events answered its purpose, and was found sufficient for many a subsequent sketch. After a hearty lunch, we returned to Leukerbad, the only incident on the descent being a conflict between two bulls, in the fields near the hotel, which threatened, at one time, to be tragical, but was at length terminated, like another memorable struggle, then of recent date, by the intervention of a third party, on terms not quite satisfactory to the one who seemed likely to have the best of it, and for which he was anything but grateful to the interloper.

I cannot understand why the ascent of the Torrenthorn is not more constantly made. If it were in the neighbourhood of Interlaken or Chamouni, an inn would be built at the top, and numerous parties would sleep there, to witness the sunset and sunrise. As it is, nine people out of ten (if not a much larger proportion) of those who visit the

Baths of Leuk pass on to Kandersteg, or to the valley of the Rhône, without any idea of bestowing a day upon one of the grandest sights in Switzerland. There is no difficulty; mules can go to the very summit, and it is a moderate day's work. We started at seven, and reached the top at noon. It is called a four hours' ascent, but I doubt whether many mules could be found to do it in less than five; still it is not fatiguing. The path, though somewhat steep, is generally good; and ample time for rest may be allowed at the summit. The descent was performed, easily, in three hours, and we returned to Leukerbad in time for the six o'clock table-d'hôte.

The next day, we made that wonderful pass, the Ghemmi, which I never approach without new feelings of astonishment and awe. When I first saw the head of the valley of the Dala, the path was much narrower, and altogether in very different order from its present admirable condition; there were scarcely any of those railings and balustrades which are now constructed in the most exposed parts, and form conspicuous objects from below, indicating where the track creeps up the face of the precipice; and I shall never forget the impression produced, as we wound steadily up the valley to the base of the rocks. It seemed perfectly absurd to think of escaping from the valley, in that direction, unless we could imitate a fly, and creep up a perpendicular wall. The Happy Valley was not more effectually barred than this appeared to be, and one's feeling was that unless we could find better wings than Rassehas's, we might stay beneath those crags till doomsday. I remember well, how impossible it was to divest myself of the idea that we must have mistaken the way, and lighted upon a blind trail. It is no part of my purpose now to

describe the passage of the Ghemmi, but it is difficult, when so near, to avoid expressing some of those feelings of mysterious wonder which it never fails to excite. My object, at present, is to point out the advantage of sleeping at the Schwarenbach, as the little inn at the summit is called. The quarters are not first-rate, but I have slept in many a worse place, and they are at least as good as those at Kandersteg;—a halting-place which (when I knew it—up to 1854) all who valued a good night's rest would have religiously eschewed.* Either in the wild tarn beneath the Schwarenbach, or in the Daubensee, a bracing dip might be enjoyed by those who are fond of a cold morning bath. Their waters are too cold for more than a dip to be safe; no human being, probably, could swim a hundred yards in either. By passing the night at the Schwarenbach, it is easy to reach the brow of the mountain above Leukerbad at, or soon after, sunrise; and I have scarcely ever beheld anything finer than the early morning sun shining gloriously upon the distant Weisshorn,† and upon his attendant peaks, and lighting up with a flood of radiance the vast banks of dense white cloud, which clustered in solemn state about his sides and base. The same inn would form an excellent starting-point for an ascent of the Great Altels; an expedition which Balmat and myself longed greatly to attempt, and which we had little doubt was practicable. It has since been accom-

* A new inn has since been opened at Kandersteg. My remark does not apply to that inn, if it be opened. I know nothing either to the advantage or disadvantage of such an inn; nor can I tell whether the character I have attributed to the old inn at Kandersteg, four years ago, is applicable at present.

† The Weisshorn is often mistaken, in this view, for Monte Rosa, which, however, is twenty miles further from the spectator, and effectually concealed by the range of the Weisshorn.—See Forbes's "Travels through the Alps," p. 303,

plished several times and is described by Mr. Hinchliff in his "Summer Months among the Alps."

If the Schwarenbach were properly kept, and honestly conducted, there is no reason why it should not become a favourite halt for the night, with those who know the invigorating effect of sleeping at great heights; but unfortunately, for the last two or three years, (up to 1854—I can speak no later), it has been kept by a set of extortioners, each worse than his predecessor. I slept there, in company with H. and two other friends, in 1852, when we had great reason to complain, and disallowed more than a third of the bill; but in 1854, the innkeeper outdid all other men I ever came across, in the shameless impudence of his outrageous demands. Balmat had warned me against him, as a "*véritable voleur*," but he was worse than I expected to find him; and if his successor has been able to keep his proper rank in the series, he must be a perfect paragon of rascality.

From the Schwarenbach may be explored also the glaciers of the Wildstrubel. I have never traversed them; but my companion of 1852, H., during a temporary delay, caused by an accident to my foot, ascended the Engestligen Thal from Frutigen. He found the head of the valley singularly wild and romantic—rocky mountains in the foreground, with a fine waterfall falling over the precipices opposite Adelboden, and above, the snowy summits of the great chain. He slept at Adelboden in very rough, but tolerably clean, quarters, where he derived abundant amusement from observing the country people of whom the inn was full; and, the next morning, climbed to the Lammer Gletscher by a track which not unfrequently rivals the original wildness of the Ghemmi, and where, in places, the only means of advancing a step are afforded by pieces of wood pro-

jecting from the rock, or by stages erected on supports of a similar kind. He traversed the glacier for somewhat less than an hour, and found it encircled by bold crags, but too much shut in for a distant view; he then descended upon the Daubensee. He described the expedition as one well worth taking, for the sake, especially, of the view of the head of the Engestligen Thal, and the wild and curious approach to the glacier.

A little excursion may be made from Kandersteg or Frutigen, which, at a very small expenditure of labour, conducts the traveller to a scene as unique, as it is exquisitely beautiful; I mean, a visit to the Æschinensee, a glacier lake which lies at the foot of the Blumli Alp, and is half surrounded by a magnificent range of sheer precipices, rising directly from the water's edge for thousands of feet, till they are capped by the enormous glaciers of the Blumli Alp and the Doldenhorn. It is hardly an hour and a half's walk or ride, from Kandersteg to the shores of the lake, following up the stream by which its surplus waters are discharged into the torrent of the Kander. The first half hour is over a dreary waste of stones and débris, brought down by the stream in bad weather, and scattered over scores and scores of acres; afterwards, you enter pleasant thickets and pass through copses of dwarf mountain trees, and emerge to a short stretch of swampy ground, where unbidden springs of crystal water gush forth at every step. You do not see the lake till close upon it; when it bursts suddenly upon you, cradled in the very heart and bosom of the Blumli Alp, which rises in savage grandeur, one unbroken mass of mingled precipice and snow, from the water's edge far into the blue sky. The lake lies at the head of the valley you have been ascending, and

the lowest point in the wall which rises beyond it may be scaled; it is, in fact, the Dundengrat, over which a pass of no common beauty leads, beneath the snows of the Blumlis Alp, to the head of the valley of Lauterbrunnen.

In this sequestered spot, the still waters are scarcely ruffled by a breath of air, and the dark precipices which support the glaciers of the Blumlis Alp and the Doldenhorn appear to be continued for an equal depth beneath the surface of the lake, from whose deep bosom the mirrored snows shine with what seems no borrowed radiance. These vast precipices are streaked by a thousand waterfalls, which course down their face, leaping from rock to rock, now broken and dispersed, now uniting again, hundreds of feet lower down, and covering the huge and sombre mass of crags with an exquisite network of silver threads. On the left, the lake is girt by a broad belt of deep and variegated wood, in which the pine, the larch, and the fir predominate, and are woven together by a thick undergrowth of shrubs and bushes. The contrast between the luxuriant vegetation and cheerful aspect of this side, and the gloomy precipices and eternal snows across the water, is most impressive. Next to the Jungfrau, the Blumlis Alp is the most graceful in form of all the mountains of the Oberland, and when seen, as it is from the opposite bank of the lake, set in a rustic frame of moss-grown branches, the effect is beautiful beyond description. So fair, so solemn, so perfect a scene is hardly to be found elsewhere.

While my wife sketched, I wandered along the shore of the lake, which was clothed with thick wood to the water's edge. Some of the firs were noble trees, and many were decorated with rich fringes of the pine-tree moss. On turning from the shore, I

found myself almost immediately entangled among a great accumulation of massive boulders, strewn in wild confusion over a great extent of land, from between which the tall trees sprang up, and which were coated with lichens and moss, and concealed by dense thickets of bramble-bushes and shrubs. They had evidently lain where they were, for centuries, and I was much puzzled to conjecture whence they came. They are too far from the side of the valley, to have rolled from the heights which flank it; but they were so well protected by the underwood, that it was impossible, without appliances which we had not with us, to see what they were, how they lay, or what was the character of the deposit. So far as I could make out, they did not look like the components of a moraine; nor was it easy to see how a moraine should have come there. Among the woods were vast quantities of excellent wild fruits; the blackberry, the blueberry, the cowberry, and the deep red shining stone bramble, (*rubus saxatilis*)—by far the most luscious of Alpine wild fruits*—the wild straw-

* In the former edition of this volume I have spoken of this plant as *rubus chamaemorus*. I am indebted for the correction to two gentlemen, Mr. G. Chicester Oxenden, of Broome Park, and Mr. Elwes, the author of the "Sketcher's Tour Round the World," both of whom are familiar with the *r. chamaemorus* in Arctic regions where it flourishes. Mr. Elwes kindly sent me a sketch in colours of the *r. ch.*, from which I saw, in a moment, that I had mistaken the plant. Being in Savoy last autumn (1857), I gathered and pressed some specimens of the plant I had seen before, and submitted them to my friend Mr. Atkins of Painswick, who at once recognised it as "*r. saxatilis*, a plant by no means uncommon on stony mountain sides in the north of England and Scotland." I must explain that the error in the previous edition was mine, not his. I had never preserved any specimens before 1857, but when travelling with Mr. Atkins in 1852, I had found both *r. saxatilis*, and *r. chamaemorus*, and when away from my instructor, I had mistaken the one for the other. Mr. Elwes doubts whether *r. chamaemorus* grows in Switzerland, but Mr. Atkins writes to

berry and wild raspberry grew in great profusion, and supplied us, at little pains, with a delicious dessert. It was the most wonderful spot for wild fruits I have ever seen; and all were ripe and full of flavour.

Peaceful as the tranquil waters seemed to us, they had not always worn that gentle aspect. A part of the bank to the south of the wooded belt is composed of a mass of bare, dark-grey shingle, compacted together by a smaller grit, like the deposit of a glacier stream. Here, there is no visible outlet. The stream which drains the lake bursts forth, about half a mile off, in the innumerable springs before mentioned, which force their way through the marshy ground. It is said that a few years back the waters rose, covered all this expanse of flat shore with shingle, and, in one place, cut a channel for themselves, ten or twelve feet deep, through which they rushed madly, bearing before them trees, rocks and boulders, and spreading desolation far and wide. The dry channel remains to this day, a lasting monument of the power of the torrent. This stony deposit is singularly unproductive; not a blade of grass will grow upon its barren surface, but, curiously enough, the *gentiana ciliata* flourishes with remarkable vigour and freshness of colour. I have never seen

me that he has no doubt whatever "of having found *r. chamaemorus* and brought the fruit under your notice when on our mountain rambles." I have accordingly allowed it still to stand as *r. ch.* in speaking of the Monte Moro, which I crossed with Mr. Atkins, and upon the Macugnaga side of which we found great abundance and variety of wild fruits. I gladly avail myself of this opportunity of expressing my thanks to Mr. Elwes for a very courteous and handsome offer to furnish me with sketches of the Oeschinen See, and some other scenes described in this volume, for a second edition—an offer of which I very much regret that circumstances have not permitted me to avail myself.

such fine specimens as here, where I did not find a single other herb or plant of any kind. According to our usual custom on such occasions, we had brought a good lunch of cold chicken, bread and cheese and wine with us, and were therefore enabled to spend from four or five hours upon the banks of this charming lake. I resolved to enjoy the luxury of a bathe, and, seeking a convenient spot, stepped in (I did not venture upon a header, for I did not know what the bottom might be); I plunged in, far out of my depth, and for the moment was alarmed; the icy coldness of the water was beyond anything I had ever felt, and appeared to take away all power and nerve. It was with some difficulty that I pulled myself out of the water; swim away from the side, I dared not; the cold would probably have produced almost immediate cramp. I had had nearly enough of bathing in a glacier lake. Balmat, who tried it after me, found it equally impossible to remain in the water.

We had started from Frutigen at nine, and taken a char to Kandersteg, where we hired a saddle-horse for my wife, and reached our destination about half-past twelve. It was five, before we reluctantly turned our backs upon this exquisite scene, and we reached Frutigen at eight in the evening; an hour too late, for the 12th of September. As I have mentioned Frutigen, I cannot forbear recording my pleasant recollections of the Hotel de Helvétie (or Hotel de la Poste). It is an unpretending inn, but the very picture of cleanliness and comfort, and the kindness and hospitality of the hostess were beyond all praise. I have mentioned, in a subsequent chapter, what hearty and unaffected kindness we experienced from the landlord, when, after our six hours' walk in the

heavy rain, descending from the Tschingel, he gave up to us his own bedroom, and lent us certain clothes, in which we cut a distinguished figure among the guests assembled in the *salle-à-manger*. H. and I had always cherished a grateful sense of the simple and genuine hospitality shown to us on this occasion, and had lost no opportunity of recommending the inn to the favourable consideration of other travellers, both by word of mouth and by entries in the various travellers' books, and in consequence had really been of some service to the host; and I had done the same thing, when travelling in Switzerland in 1853. The people of the inn were aware that they had profited by my recommendations, and when I arrived from Leukerbad, in 1854, with my wife, I was received more as a welcome and honoured guest than as a customer. I had sent word by a friend, that we were coming, and we found a beautiful glass of freshly cut flowers on the *toilette* table. Nothing could exceed the attention and kindness of these simple and warm-hearted people, during the two or three days that we spent in this lovely valley, excursioning from Frutigen, and returning every evening to a wholesome meal, a cordial welcome, and clean and quiet quarters. The landlady had a long chat with us, before we started for Thun, and descanted eloquently upon the charms of the neighbourhood, (which, in truth, it would be difficult to exaggerate), adding that they had a pretty farmhouse on the mountain side, where she hoped, if we ever came again, we would pay her a visit, and see something more than we had done, of the beauties of the valley. I ought to add, that in no instance have I ever heard of any one being otherwise than pleased with the accommodation, the excellence of

which is only surpassed by the moderateness and honesty of the charges. It is a pleasure to me to have an opportunity of recording my grateful remembrance of the kindness and attention I have experienced, on every sojourn at this hospitable house.

several visits, of more or less length, to this delightful spot, I have explored a considerable part of the surrounding district; and though far from having exhausted the beauties of the neighbourhood, I am inclined to think the excursions I am going to mention are those which will best repay the traveller. The first is one by no means unknown, but still deserving, in my opinion, a far greater degree of attention than it has at present attracted. Most of the rest would, I believe, be new to ninety-nine hundredths of the natives.

Across the bridge over the Aar, on the road to Brientz, a path leads to the left, up the Harder, the mountain range which rises immediately behind Interlaken to a height of some four or five thousand feet. It is in excellent condition, and lies through thick and shady woods, which at length give way to a bright green slope, terminating in a soft and verdant ridge. The view comprehends the Lake of Brientz, the Valley of Lauterbrunnen, and the grand chain of the Bernese Alps. It is a spot easily reached on horseback, commanding such a view as is rarely to be had, even at the expense of much greater labour, and yet not one in fifty of the visitors at Interlaken is tempted to ascend. It is not above two or three hours' pleasant walking or riding from Interlaken, and is too easy of access to be thought much of.

Some caution, however, is necessary in descending, as one is generally tempted to do, over the grassy slopes which surmount the belt of woods, instead of keeping well to the west, where the woods reach nearly to the top, and so returning by the path. These slopes are far steeper than they look, and, when baked by the hot sun for weeks, are more slippery than is readily believed. I once clambered

CHAPTER XII.

EXCURSIONS AND EXPLORATIONS IN THE NEIGH- BOURHOOD OF INTERLAKEN.

The virgin mountain, wearing, like a queen,
A crown of everlasting snow,
Sheds ruin from her sides ; and men below
Wonder that aught of aspect so serene
Can link with desolation. WORDSWORTH.

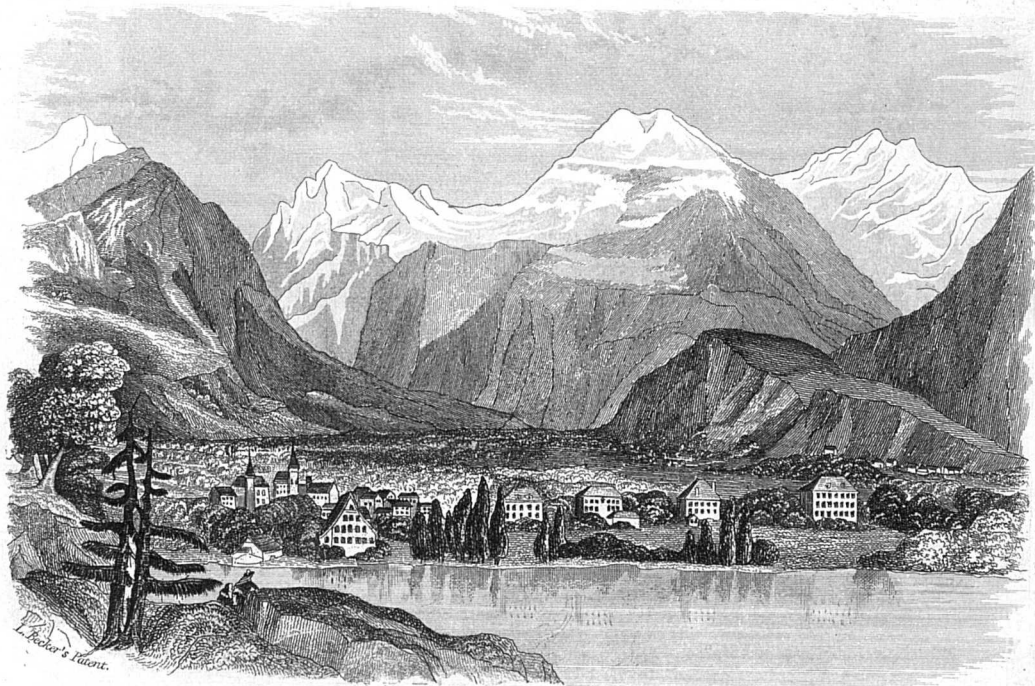
Flemming looked, and beheld a scene of transcendent beauty.
LONGFELLOW ("HYPERION").



Unknown Treasures of Scenery about Interlaken—The Harder—Dangerous grassy Slopes—Tragical fate of a Lady—Magnificent Precipices—An uncomfortable Seat—Above the Staubbach—The Gumihorn—A second Jungfrau—Beautiful Woodland Path—Deep Snow—Striking Panorama—An intractable Steed.

THE country about Interlaken* ought to be well known, but it is not so ; the numerous tourists who crowd the hotels and *pensions* are as little aware of many of its greatest beauties as the natives of Timbuctoo ; even the people of the country are but very imperfectly acquainted with the treasures of scenery which are within easy access on every side. During

* See the map at the beginning of Chapter XIII.



INTERLACHEN.

straight up from the bridge over the Aar, making my way through the thick forest of fir and beech, stopped here and there by faces of perpendicular rock, which break out of the ground, and which it is necessary to turn, and emerging at about two-thirds of the height of the ridge, upon the steep slope of dry wiry turf, which stretches in one unbroken surface from the edge of the woods to the top. I found it very difficult to ascend, and when I got near the summit, it was so dry, so hard, and so steep, that I was obliged to go on my knees and pull myself up by the roots of the grass, or anything else I could cling to. I was seriously alarmed, for had I slipped, it is difficult to see what could have arrested my fall. The sun was so intensely hot, and it was such hard work, that finding a shrub at the top, underneath which the dew still lingered, I was glad to throw myself on my face, and suck the moisture from the herbage. On another occasion, I had ascended with several friends, and we were all descending these grassy slopes, when some, who were about a hundred yards behind the rest, called out to know if what they saw before them was an actual precipice; it was nothing but the increasing steepness of the slope that made it appear so. Soon afterwards, one of the party slipped, and was unable to stop himself. With great presence of mind, he threw himself over by a sudden effort on to his face, and spreading out his arms and legs, and digging his fingers into the ground, succeeded in checking his descent. Nobody could have helped him, and had he not stopped himself, he would, in all probability, have slipped with increasing velocity for some hundreds of feet, and shot over a precipice which happened to be below, between us and the belt of wood. His fingernails were all broken in the effort to save himself.

Seen from below, the slope appears so gentle, that

this description would scarcely be credited—but it is strictly accurate. A melancholy accident which occurred in 1850, on the other side, where the descent is of the same character, but more rapid still, attests its truth. An English lady staying at Interlaken, one day took the path, and wandered on till she came to the summit. Here she met an Italian courier belonging to another party, also at Interlaken, and pleased at her exploit, begged him to cut her initials on a tree, that she might thus prove to her friends how far she had rambled. He complied, but in doing so, broke his knife; with the superstition common to his race, startled at the omen, he implored her to turn back, saying that some calamity was impending. She laughed at the prognostication, and having induced him to complete his task, strolled on along the ridge. She never returned, and next day her mangled remains were found, some thousands of feet below, on the other side of the mountain.* Her foot had slipped, and she had begun to roll; she had seized a young sapling, hoping to arrest her progress, but the impetus was too great; it snapped, and was found in her grasp when the body was discovered. Her money, jewels and watch were

* A similar accident was mentioned last autumn (1857), in a paragraph in the 'Times;' I do not vouch for the truth of the story, and I omitted to preserve the date when I cut out the paragraph. It is as follows: "Two young girls at Interlaken, on the 8th of this month, accompanied their brother and their music-master on an excursion to the summit of the steep hill of the Harder. When they had to descend, finding the turf so slippery that they could not keep their feet, it was proposed that the girls should sit upon a kind of extempore sledge, contrived with some fir branches, and be drawn along by their companions. Unfortunately, they had gone but a few yards before they slipped off, and rolled down the precipice. When their friends got down after them, the elder girl was dead, and her sister died a few minutes after."

safe; the watch, having been stopped by the blows it had received, marked the hour of the accident, and showed that it took place but a few minutes after she had parted from the courier. I have twice ascended, and once descended these grassy steepes, and have seldom performed a more dangerous task—easy as it looks. The peasants who mow the grass on the sides of the mountain wear crampons, otherwise even they could hardly get up and down with safety.

A very interesting point of view, all but unknown, is attained by turning off from the Lauterbrunnen road, a short distance beyond the junction of the two Lütschinen, and ascending the valley on the right, which leads up to the snows of the Schilthorn. To reach the summit of the Schilthorn is a long affair, and may be more pleasantly effected from the Lauterbrunnen side; but by climbing the side of the valley on the left, and then turning towards the northern extremity of the range, you arrive, at length, beneath some of the finest specimens of bare and rugged precipices that this part of Switzerland affords. There are some chalets near this spot, and any of the peasants will guide you to a path which leads back into the valley, down the face of a wall of rock as steep and apparently as utterly impracticable as any in Switzerland. I made this excursion in 1850, and have not repeated it; I made no note of it at the time, and therefore do not speak of the track with the same confidence as I generally can; but, as far as I can trust my recollection, I have hardly ever seen a more magnificent wall of crags, than that at the base of which we arrived. We had attempted to ascend the Schilthorn, but were delayed by a ludicrous accident. We had pursued the course of a stream, until we were stopped by some rocks which we could not climb.

It became necessary, therefore, to mount the banks of the torrent, to the turf slopes, a couple of hundred feet above. This bank was very steep, but at first was easily scaled, as there were many large rocks and boulders, which gave us footing; about half way up, however, these ceased, and the bank was composed of a hard, gritty earth, very well compacted, and upon which the alpenstock and the toes made little impression. The foremost of our party, attempting to mount straight up, arrived at a curious piece of projecting rock, about the size and shape of a saddle-peg. He got astride, to rest, and found he could not stir; above, the bank was all but perpendicular, and below, he had so scraped the surface with his struggles to get up, that he could obtain no foot-hold at all, to get down again. There he was, with his face to the wall, seated across the peg of rock, and there he was obliged to remain, till we could cut a set of slanting footsteps up to the rock, along which a passage could be safely effected to a tongue of turf which hung down lower than the rest, some fifty or sixty yards off. The hardness of the material may be judged from the fact, that to cut these steps cost us more than an hour's hard work.

The next excursion I shall mention is better known than the foregoing, but not nearly so much so as it ought to be. Near Lauterbrunnen, a narrow track zig-zags to the top of the ridge over which the Staubbach falls. Mounting by this path, and crossing the stream above the fall, where it looks insignificant enough, in comparison with its world-wide fame, you come to rich and beautiful pasture-grounds, extending along the whole length of the valley of Lauterbrunnen, and supported by the formidable wall of precipices which flank that

valley. Passing through the chalets of Mürren, you descend again upon the valley of Lauterbrunnen, near the entrance of the Seefinen Thal. The earlier part of this route forms one approach to the passage of the Furce; but, without taking that expedition, every one who can spare the time will do well to make the trip here pointed out, as for the whole distance the traveller is face to face with the Jungfrau, which he sees rising in one unbroken mass from the very base to the summit. This is the finest view of the Jungfrau, and of the western extremity of the main chain, that the Oberland affords; and what mountain in Switzerland, perhaps in the world, will compare, for perfect union of grace and majesty, with the "Maiden Alp"?

Opposite to the range of the Harder, and separated from it by the valley of the Aar, rises another mountain chain, to the height of about seven thousand feet. In Rudolf Gross's excellent map, this is marked as the Gumihorn, which is doubtless its correct appellation, though I have heard it more than once called by the peasants the Morgenberg (a name not unsuited to its position, lying to the east, as the Abendberg to the west, of Interlaken). It is a range similar in general appearance to the Harder, save that it is much higher, and is crowned by a frowning barrier of precipitous rocks. I climbed it first in 1850, but have never met with any one else who had made the ascent. In 1854, I determined to take my wife to the summit, and engaged a horse and guide; but I found the guide had never been there, so that I had to show him the way. It was late in September (the 24th), and the snows of autumn had begun to fall. We had descended from Rosenlauri to Reichenbach, the morning before, in a thick snow-storm, and the mountains round about were covered

with a mantle of white, to within two or three thousand feet of the plain. It was a winter view of the Alps, such as I had never seen before, and in the bright sunshine of a clear morning, was exquisitely beautiful. Every neighbouring height seemed, as if by magic, to have been converted into a glacier-mountain. Our route lay, by the Lauterbrunnen road, to the hamlet of Gsteig, where we were to cross the Lütschinen and commence the ascent, and as we proceeded, the valley of Saxeten, which is flanked on the west by the Abendberg, and on the east by the chain of the Sulegg, opened on our right, terminated by a fine mountain called the Schwalmeren. At this moment, a most remarkable phenomenon presented itself; we saw two Jungfraus. Never was illusion more perfect, and the longer we looked, the more difficult was it to say, disregarding position, which was the true one and which the false. The mountain at the head of the valley of Saxeten was converted by the fall of snow into an exquisite copy of the Queen of the Alps. The only difference was that the imitation, strange to say, was unquestionably more beautiful than the reality. But every peak and every glacier of the one found its exact and faithful counterpart in the other. The Silberhörner were reproduced with marvellous fidelity, and I believe that if one had been taken blindfolded to the spot, and told to look up the valley of Saxeten, it would have been impossible to detect the deception. When we returned in the evening, the hot sun of mid-day had done its work, the disenchantment was complete, glaciers and snow-clad summits had faded into dark and gloomy crags, and we were unable to discern the slightest trace of resemblance between the two mountains.

The range of the Gumihorn comes to an end in a

series of abrupt precipices, just beyond Gsteig, whence it runs back for some miles, in a north-easterly direction, parallel with the lake of Brienz. Crossing the stream, we commenced the ascent :

“ The mountain-skirts, with all their sylvan change
Of bright-leaved chesnuts and mossed walnut trees,
And the frail scarlet-berried ash began.
Swiss chalets glittered on the dewy slopes,
And from some swarded shelf high up, there came
Notes of wild pastoral music.”

The path leads through thick woods, (broken, here and there, by patches of upland meadow) which clothe the side of the mountain for about the first two thousand feet. The overhanging branches and tangled underwood showed how little it was used, and we sometimes found a difficulty in clearing a passage for the rider as well as for the horse. This part of the excursion was exquisitely beautiful. For the first thousand feet or so, the woods were composed chiefly of splendid beeches, but mingled with them was a sprinkling of ash, chesnut and walnut, which gave a pleasant variety of form and colour. Through their interlacing branches, we caught unexpected views of the Lakes of Thun and Brienz and the smiling plains which nestle beneath the shelter of the many ranges converging upon Interlaken. These glimpses came so suddenly upon us, ever and anon, from some opening in the wood, and in the bright sunshine all nature was so radiant and lovely, that we seemed to be taking furtive peeps into fairyland. We wound our way amongst the stems of noble trees, and through rocks green with a rich carpet of moss, or by the side of a bank of wild flowers, laden with heavy dew and scenting the air with their grateful fragrance.

After the beeches, came a belt of pines, firs and

larches, separated from the lower strip of less mountainous trees by a broken line of verdant meadowland where the wild flowers bloomed with great purity and loveliness. We were struck with the great beauty of a very familiar little flower—the common milkwort, which grows in remarkable strength and abundance; parts of the meadow looked quite blue with it. We found also the large yellow fox-glove (*digitalis grandiflora*), which had a very brilliant effect. The air was fragrant with beds of wild thyme. The tall yellow sage (*salvia viscosa*) was conspicuous, from its size and the clearness of its colour. In the lower woods, on many of the banks, and clustered against many of the large stones, were quantities of the delicate *asplenium rutamuraria*, (rue-leaved spleenwort) splendidly fruited. Beyond the meadows, near the upper skirts of the fir-woods, I gathered a noble specimen of the dark blue mountain centaury, growing in solitary pride.

Bye and bye, we left this pleasant woodland scene, and entered upon a broad tract of sloping pasture-ground, dotted with cattle-huts and chalets (called the chalets of Breitlauinen), where all trace of a path was lost. After winding our upward way, for half an hour or more, over these pastures, we found the ground crisp with the frost, and the slips and stumbles of the horse, as well as the proximity of the snow, warned us that it was time to dismount. We left our Bucephalus in charge of the "guide," while my wife, the faithful Balmat and myself continued our ascent. We soon got into the snow, which lay thickly upon everything, so that it was difficult to tell on what we were stepping. Once, we plunged into a thicket of blueberries and wild raspberries, upon which we levied black mail as we passed. The mountain became steeper and steeper at every pace;

and the snow lay deeper, till we were zig-zagging in six inches of snow. It was laborious enough for my wife, who had to place herself between the two alpenstocks, in the manner I have described before, when speaking of our visit to the Jardin.

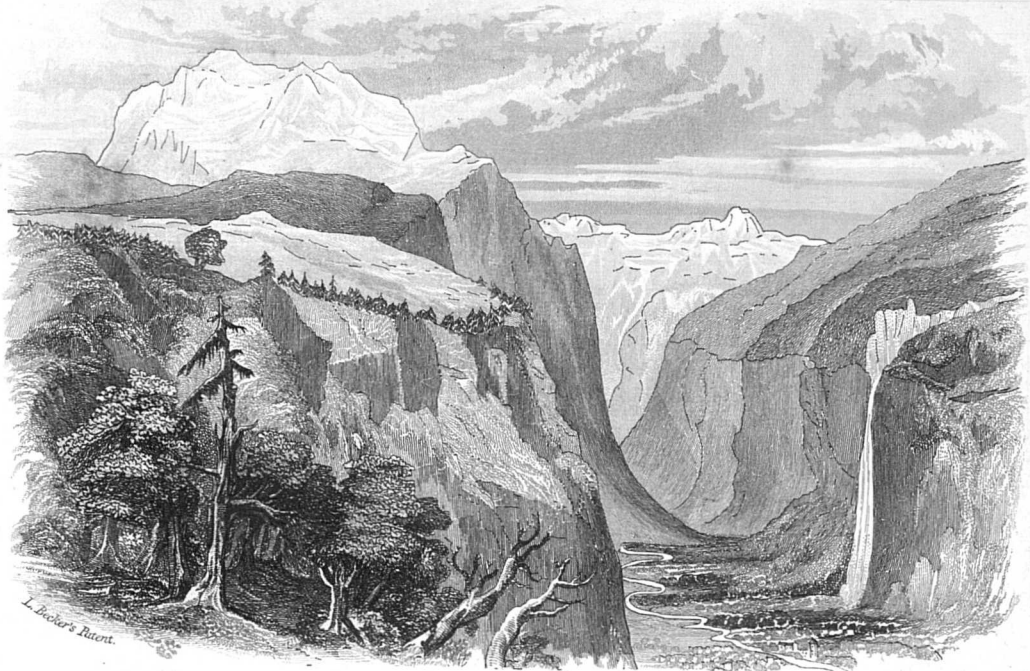
There is a white chalet on the sward, not far from the belt of trees, conspicuous from Interlaken. Nearly above this chalet, is a point or two in the arête of rocks, where they may be scaled without difficulty; but we found it more advisable to skirt their western extremity, where we stumbled upon a path which evidently led up from some place below, and round the end of the ridge—probably into the valley of the Black Lütschinen—but which had been hidden from us by the snow. Following this for a short distance, we found ourselves able to ascend higher, behind the rocks which form the summit of the range, and in a few minutes more, clambered over a great collection of huge boulders, and reached the brink of a bold cliff, which terminates the ridge, and at the foot of which we had passed round its extremity, hundreds of feet below.

To my mind, the Gumihorn affords the finest point of view in this part of the Oberland. You stand at the point of junction of four of the noblest valleys in Switzerland. In one direction, you gaze up the valley which leads to the Lake of Brienz; in another, down that which ends in the Lake of Thun; further to the left, the eye fairly rakes the Valley of Lauterbrunnen with its thousand silvery falls, (of which the Staubbach is hardly the most beautiful), closed in by the imposing glaciers of the Tschingel and the Balm; while, in a fourth direction, you command the whole length of the valley of the Black Lütschinen, which leads up to Grindelwald, and which, backed by the dazzling masses of the Eiger,

presents a vista of hardly less magnificence. You are face to face with the whole chain of the Bernese Alps, from the Tschingel pass in the south-west to the Shreckhorn at the opposite extremity, set off by the dark masses of the Wengern Alp in front, whose summit is considerably below you.

These are the main features of the panorama, but none of the accessories required for a perfect picture are wanting. There are dark, wooded mountains near, intersected by profound valleys whose green slopes are dotted with chalets, and fruitful plains sparkling in the sunshine with a bright and emerald green. Beneath the spectator fall away on every hand abrupt and shaggy precipices, whose bold outlines are broken here and there by a solitary mountain pine growing audaciously out of a cleft in the rock. From no other spot can so admirable a view of the whole of the Bernese chain be had; and the panorama is far more complete and beautiful than that from the Faulhorn. It will readily be conceived that the scene is never to be forgotten by any one who has been fortunate enough to behold it. When we saw it, the view was more striking than usual, on account of the immense quantity of snow, which came much below its usual line on the mountain sides. The consequence was that the great Alps of the Oberland looked greater and more majestic than ever.

While we looked, the sun became obscured, and a light haze settled gently upon the snowy tops, falling solemnly like a dark curtain upon the wondrous scene. We took the hint, and began our descent, trudging back through the deep snow. It was an hour and a half before we regained the spot where we had left the horse; and my wife was glad enough to remount, as soon as we found a convenient bank



L. Becker's Patent.

THE VALLEY OF LAUTERBRUNNEN.

CHAPTER XIII.

THE PASSAGE OF THE TSCHINGEL GLACIER, FROM LAUTERBRUNNEN TO KANDERSTEG.

These lonely regions, where, retired
From little scenes of art, great nature dwells
In awful solitude, and nought is seen
But the wild herds that own no master's stall.

THOMSON.

ἄσβεστος δ' ἄρ' ἐνῶρτο γέλως μακάρεσσ.

HOM.

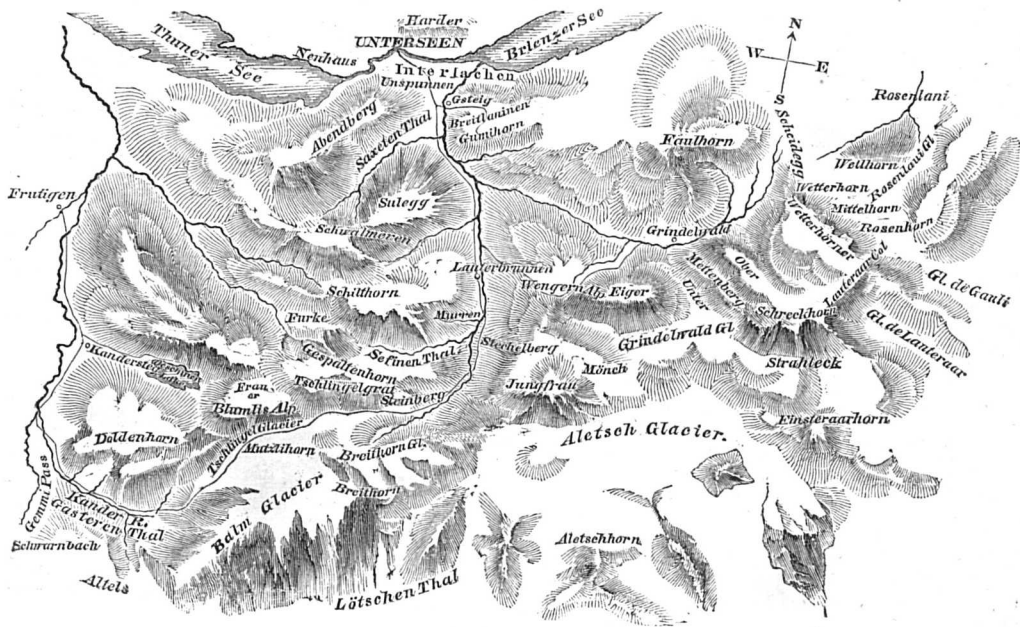


The Laueners—Thunder-storm—The Jungfrau by Moonlight—
Upper Valley of Lauterbrunnen—A rough Ladder—The Gla-
cier—Rash Bees and Butterflies—A Herd of Chamois—Ano-
ther Storm—A wet Walk—Kandersteg—Frutigen—A Mas-
querade.

I PASSED across the Tschingel glacier, on the way
from Lauterbrunnen to Kandersteg, in 1852, in
company with two friends, H. and W. We walked
up on Monday afternoon, August 30th, from In-
terlaken to Lauterbrunnen, where our first care was
to inquire for the Laueners, who were, and still are,
the best guides in the Oberland. Johann and Ulrich,
the two elder brothers, were away; but we secured
the services of the third brother, Christian, a fine,
intelligent, smart-looking fellow, of some two or

in the wood. Her satisfaction, however, was of short duration, for scarcely had she touched the saddle when the animal began to kick and plunge furiously, backing to the edge of the path, which was entirely unprotected, with almost a precipice below, and it was absolutely necessary to dismount as quickly as possible. Lower down, when she was getting tired, I mounted him myself, to see if he was in a more tractable mood; but was barely in the saddle, before he commenced such a series of struggles as showed that it would never do for a lady to trust herself to his back; and she was accordingly obliged to walk all the way to Gsteig. It was the pressure of the crupper that had irritated the beast; once upon the plain, he behaved quietly and reasonably enough.

It had been a good day's work for a lady; we had started soon after eight, and had loitered on the ascent, so that we did not get to the top till two, nor back to Interlaken before half past six. I knew that I had myself made the excursion in about five hours, and did not allow sufficiently for the difference of circumstances; besides which, the snow had greatly impeded us. We had calculated upon returning by three or four o'clock, and had taken only a single roll with us, instead of our usual abundant provision for the mountains; and as we found a strong desire for dinner come over us about mid-day, it may be conceived that we were somewhat ravenous before we returned. However, "All's well that ends well;" and our landlord suffered for our enforced abstinence. I have never before seen snow upon the Gumihorn, and under ordinary circumstances, the excursion might easily be made, even by a lady, in seven or eight hours. I trust it will not long remain so little known as it has hitherto been.



three and twenty, above six feet high, and without an ounce of superfluous flesh to carry. We left the selection of a guide to him, arranging to start at half-past four in the morning, if the weather should permit, of which there seemed some doubt: for a violent thunder-storm had begun about five o'clock, and the flashes of lightning and the peals of thunder were almost incessant during the whole of the evening. There was no rain, but over Interlaken and towards Thun the clouds were very heavy; and often, full a third of the whole expanse of the heavens was one vivid sheet of blinding light. When we went to bed, the moon was shining brilliantly in at the windows; but her mild radiance was continually lost in the fierce glare of the lightning. My companions were soon fast asleep; but, for some reason or other, I lay hopelessly awake. I looked out of the window at half-past one, by which time the moon had crept a long way round, and was behind the house. Her light was sleeping gently on the snowy summit of the Jungfrau; and no trace or sign of the storm remained. Luckily, I fell asleep soon afterwards, to be aroused in about a couple of hours by the pitiless boots, who performed his task of waking us only too faithfully. The scene was still of the same lovely character, till a little after four, when the cold, grey tints of early dawn began to mingle with the softer light of the moon.

We found Christian Lauener awaiting us below, with his father, a hale old fellow, of about sixty, for our second guide. Our preparations were soon made, and by about a quarter past five we got fairly under weigh. Christian Lauener led off at a good, sharp, five-mile-an-hour pace, which we kept up till we came, in about an hour, to a chalet called Stechelberg, where the path becomes a good deal

steeper. Here, we began a most beautiful ascent; having below us on our left the wild torrent which comes tumbling down from the cascade of the Schmadribach. On our right was the opening of the Seefinen Thal, looking towards the Furce, by which we might have passed in front, instead of at the back, of the Blumlis Alp, to the place of our destination, Kandersteg. Guarding this opening were the rugged precipices of the Spitzhorn, towering aloft for thousands of feet. On our left were the glaciers of the Breithorn, fantastically and fearfully crevassed, rising into pinnacles and towers of ice. Through an arch in one of them we could see the bright blue sky beyond.

Our path lay among rough but verdant pastures, with patches here and there of boggy land, covered with rich yellow masses of the creeping marsh marigold (*caltha radicans*). Then we passed through dark pine woods, festooned with rich fringes of lichen, many inches long, and among and over great boulders and blocks of rock, covered with mould, or overgrown with moss. Thus we continued, among soft and luxuriant vegetation, for an hour or more, with all kinds of wild flowers and beautiful grasses about us; campanulas of many sorts and sizes, viper's buglass, milkworts, wild strawberries, bilberries, and several other species of vaccinia—among them the large, dark, shining, red fruit of the stone-bramble, (*rubus saxatilis*) as juicy and luscious as a currant, which grows more freely in this part of the Oberland, and by the shores of the Eschinen Lake, than in any other place I know—all laden with the fresh and heavy dew of the morning, until sometimes the way seemed paved with diamonds. The sun was already high in the cloudless heaven, but the gigantic wall of ice on our left shaded us till nearly eight o'clock,

when we met the edge of the descending shadow, just as we emerged on to some steep pasture-grounds, commanding a noble view of the Schmadribach cascade and the head of the valley.* After zig-zagging up these for some time, and passing near the chalets of Steinberg, where people sometimes sleep, or rather, don't sleep, in order to shorten the day's work, we refreshed ourselves at the last clear water we were likely to meet with for some hours, and after a short clamber over some rough stones at the foot of the glacier, at about twenty-five minutes past eight, set foot on the lower Tschingel glacier. The lower and upper glaciers of the Tschingel are both parts of the same great mass of ice; but where the upper glacier falls over a steep ledge of rocks, above the Schmadribach, it is so fearfully crevassed, that you must leave it for a time, and clamber up the rocks that skirt it, till you have got above the impracticable part. The old plan used to be to strike across the glacier,† in a slanting direction, towards the left, and then, leaving the bad part on your right, to mount the rocks on the south side of the glacier, till you could enter it again on the upper plateau. But there was some danger in this, as you had to pass under a part of the glacier which is apt to send down avalanches and showers of stones on to the slope beneath.

* A mule or horse can come nearly as far as this spot, and it makes a most charming excursion for a lady. The upper valley of Lauterbrunnen is one of the finest scenes in the Oberland. I brought my wife as far as here, in 1854, and we were accompanied by another lady and gentleman. From Lauterbrunnen, the excursion is a very moderate one, and should not be omitted if a day can be spared.

† This and some of the following sentences may perhaps be recognised as bearing a close resemblance to one or two of the notes in Mr. Murray's most useful Handbook. It is but fair to myself to say that I had the pleasure of communicating the notes in question to Mr. Murray.

The present plan is to keep always to the north, or right side of the lower glacier, and after some forty minutes' climbing up its sloping surface, and among crevasses which demand some little care, to approach the rocks on the right, at a place a short distance from where blocks of ice and stone often fall, and there to quit the glacier for the rocks. You may know the part which these falling blocks make it dangerous to approach, because it is just where the passage looks the easiest, and where you would be inclined, if without experience, to make the ascent.

Here we turned sharply to the right, so as to face the rock, and found ourselves at the foot of an overhanging crag, thirty or forty feet in height. The only way to get to the top was by a ladder, consisting of a single stick of pine, with rungs set across, and projecting on each side. It is laid in a notch of the rock, and the foot steadied by two or three large stones placed against it. We mounted this, and landed on a mere ledge of rock, scarcely wider than a goat's path, and scrambling up a few paces on our hands and knees, round a projecting part of the rock, came to a little gully, down which there was a water-course. It was thirty or forty yards across, and very steep; the earth was a hard, black grit, which scarcely took the alpenstock, covered with loose, shingly stones, which gave way beneath the foot, and, a few yards below, rolled over a precipice. However, we got across somehow, and in a few minutes were all five assembled on the green slope beyond, discussing a bottle of wine and some bread, meat and cheese.

We now toiled for forty minutes up a laborious, steep ascent, including one "*mauvais pas*," and diversified by occasional patches of snow. The

way lay chiefly over stunted grass and loose stones thrown down by the glacier above us. The barrenness of this spot formed a striking contrast to the luxuriance of the vegetation, one or two thousand feet below. A solitary forget-me-not was the only flower we saw. But we were now near the upper glacier, and saw little of either animal or vegetable life. There were not many flies to annoy us, though the heat was very great, and the butterflies and bees were few and far between.*

About half past ten, we at length reached the upper glacier. Before us lay a vast extent of snow, unbroken, to all appearance, by a single crevasse; from which rose, on our right, the summits of the Tschingelhorn and the Blumli Alp, and further on, the Doldenhorn—sheer precipices of dark rock, with here and there a ledge, or a more gentle slope, on which lay piled up deep masses of snow, or from which hung down a small secondary glacier, much crevassed and broken. On our left, across the glacier, lay the Gspaltenhorn, and other portions of the main chain, their steep sides and rounded tops covered with dazzling snow, and glittering in the hot sunshine; while before us, in the very middle of the vast basin we were about to cross, rose the crags of the Mutzlihorn, between which and the Blumli Alp lay our path. Looking behind, we saw the whole chain, from where we stood to the Jungfrau, with huge glistening glaciers on high, and shaggy

* On almost every glacier pass I have taken, I have found here and there, dying on the glacier, bees and butterflies, and, more rarely, flies. They appear to have roamed till they have come over the ice, where the cold has been too great; they have become numbed, and have sunk on the snow, never to rise again. I have found them at a height of nearly fourteen thousand feet above the level of the sea. The bees have generally, if not always, been drones.

precipices beneath: beyond, we could just see the sharp cone of the Eigher towering into the sky. Here we donned our spectacles and veils, guides and all; we should have been half blinded without them. Christian Lauener took the lead, in high spirits, which he was obliged to let off in an occasional shout. We now plodded across the glacier for an hour and a half, making occasional détours, to avoid hidden crevasses. This part of the glacier looked like a vast undulating meadow-tract, covered with deep snow. Once, we descended a little way, and at length began to mount the last slope, which was tolerably steep. The sun was out, and it was very hot work, but before we reached the top, clouds came up, the sun was hidden, and a smart shower nearly wetted us through, and chilled us to the very bones.

At twelve o'clock precisely, we crested the summit, where a most magnificent prospect down the Gasteren Thal burst upon our view. To the left was the swelling, dome-like glacier of Balm, over which a difficult and laborious, but very grand, pass leads down the Lötsch Thal to the valley of the Rhône; and beyond the Balmgletscher, the Lötschberg, stretching low down into the valley. The Lötschhorn was lost in the gathering clouds, which threatened at least a storm. On the right was the continuation of the magnificent chain under which we had so long been passing, but still more rugged, wild, and black than before.

It was too cold to stay long at the summit, and we began to descend rapidly towards the Gasteren Thal. This slope, however, having a southern aspect, the sun had told upon it with considerable effect, and we were often knee-deep in the half-melted snow. Presently, the increasing crevasses showed that we were approaching a rapid descent, where we must

quit the ice. In fact, the glacier pours over a precipice into the valley below, and is broken into a thousand fantastic and curious shapes.

Soon after leaving the summit, we saw a young chamois and its dam, a few hundred yards off, racing across the ice. The motion of their legs was just like that of race-horses in full gallop. We watched them for some minutes, till they dashed down a precipice, or ridge of snow, where they seemed to find their companions, as immediately afterwards five or six more appeared in sight, rushing down the glacier, and bounding over the crevasses, till they were lost to the view. The Laueners, who are great chamois hunters, became very much excited, hollaed as if they would crack both cheeks and lungs, and could hardly keep themselves from setting off after the fugitives. It is a rare chance for any but the hunter to see a herd such as this; I have been much, since then, among the high glaciers, and in places frequented by the chamois, but have never, save once,* seen such a sight again.

About half-past one, we left the glacier, and got on to a steep rock, covered here and there with stunted grass; the spot is well known, as there is a little stream of clear spring water trickling close to

* Last August (1857), in descending from the Buet upon Sixt, by the Vallée des Fonds, a valley of enchanting beauty, we saw four chamois on the limestone crags far above us. One began to descend right upon the spot where we were. We stood close, in deep shadow, and he trotted down, stopping every now and then to gaze around him, and to sniff the morning air, till he came within about a hundred yards from where we were. Suddenly, he caught sight of us; pausing one moment with an affrighted look, he instantly started off with the fleetness of the wind, and leaping from crag to crag and up the face of precipice after precipice, never checked his course till he had gained the all but inaccessible heights, from which, tempted by the more luxuriant herbage of the valley, he had descended.

the glacier, by which we sat down and spent half an hour very profitably, in lightening Christian Lauener's knapsack of eatables. Bread, cheese, meat, wine, brandy and water disappeared as effectually as the banquet in the "Tempest," but with a happier result; for we set off like new men, raced down the slopes, as if in emulation of the chamois, and in about ten minutes, had descended above a thousand feet, and bounded over a heap of moraine on to the lower part of the glacier, which was dirtier than any other glacier I ever saw—much crevassed, full of pools, and covered with stones, mud and filth. And now the rain, the thunder, and the lightning began in earnest, and we were not sorry when, at three o'clock, just six hours and a half after we struck upon the ice—the last hour of which had been spent chiefly in jumping, slipping and rolling—we finally left the glacier. We now descended rapidly by a rough and bad path, for a considerable time, until we reached some chalets and a green pasturage, from which point the path was better defined. We passed a great herd of goats, sheltering under rocks, and apparently quite cowed by the storm. They followed us a long way, and were very troublesome in their desire to fraternize.

The clouds and rain hid most of the scenery; but every now and then a huge glacier loomed out from the mist, almost overhead, and we could see enough to convince us of the savage grandeur of the Gasteren Thal. Hundreds of waterfalls, swollen by the heavy rain, were now in all their glory, some of them descending with a roar and a crash like those of an avalanche. The stream which flows down the valley, usually inconsiderable, was already a fierce and formidable torrent, sometimes nearly filling up the valley, and its numerous tributaries came foaming

across our path, so that in hundreds of places where generally you pass dry shod, we had to leap for it, or get a ducking. Lower down, the water became more formidable, and we had ample proof of the marvellous rapidity with which streams may rise in mountainous countries. At length, the valley contracted to a steep and rocky gorge. We passed under a rock, as big as a house, which Christian Lauener said had fallen down only the year before, and arrived at last at a place where the rocks so nearly meet as to leave a mere cleft, through which the impetuous torrent chafed and roared and thundered, in its mad career towards the distant sea. Crossing the furious stream by a narrow bridge, we emerged, at five o'clock, into the rich Kander Thal, and in twenty minutes more arrived at Kandersteg. We had determined not to sleep at this place, but to push on to Frutigen, to escape the bad quarters at Kandersteg, and as we had been exposed to continuous and very heavy rain since two o'clock, we could not have ridden with safety; so we just called for a glass of wine, and lighting each a cigar, to keep ourselves warm, started again for Frutigen. We thought we were already as wet as we could be; but before we had walked the long eight miles to Frutigen, we found it was possible to be a good deal wetter; and very glad indeed we were when, soon after seven o'clock, we reached the excellent and most hospitable Hotel de Helvétie, sodden, tired and hungry.

It would be ungrateful not to add that the people of the inn "showed us no small kindness." The house was quite full; but the landlord not only gave up his own room to us, but supplied us, in place of our reeking garments, with three complete suits of his own clothes, in which we cut figures that would

have established our reputations in a charade, or in private theatricals. The landlord was very short and fat, whereas two of us were spare, and one was six feet in his stockings. Then there was a deficiency of braces, supplied in part by girdles made out of a piece of red tape, which somehow or other had found its way into one of our knapsacks. The task of allotting the various garments was no easy one, and the result beggared all description. W., who has rather an anxious face, and is short-sighted, peered out uneasily from between two gigantic shirt-collars, in which the bulk of his face was buried, while the unnatural distension of his coat tails (about four inches long) by the extreme bagginess of what was underneath, gave him altogether a ruffled and injured appearance. H. reminded one of the long charity boy who always gets the smallest coat, and whose sleeves do not come much below the elbows. The observant traveller will at once realize one part of my dress, when he is told that I went all over the house in search of my pocket-handkerchief, and after having quite given it up, found it at the bottom of my trousers' pocket, somewhere between the knee and the ankle. When washed and dressed, we fell into long peals of laughter at one another; the prelude only to what burst forth—unsuppressable even by French politeness—from the other guests, when we entered the *salle-à-manger*. We had the satisfaction of feeling, that if not witty ourselves, we were at least the occasion of much wit on the part of our companions.

I think the Tschingel pass would be taken to greater advantage, as regards scenery, by crossing from Kandersteg instead of from Lauterbrunnen. The view of the great range of the Jungfrau and the connected peaks must be very sublime, in des-

ending from the summit of the pass towards Lauterbrunnen. The ascent, however, is more steep and laborious on the Kandersteg side, and the snow generally more wet and uncomfortable, from its southern exposure. It is not difficult, for a glacier pass, there being no possibility of mistaking the general direction; and one good guide is quite sufficient, if there is not much baggage to be carried. Indeed, I think it might safely be crossed without a guide, by two or three persons, one of whom was well acquainted with the structure of glaciers. For one person alone, a long glacier pass is almost always dangerous, however good a mountaineer he may be, especially where, as in this case, the chief risk arises from crevasses concealed by snow, into which the traveller might easily fall, if he made a mistake as to the direction to be taken in any particular part; and if he were alone, it would probably be quite impossible for him to extricate himself. Lauener often avoided a direction which we, who at that time had had but little experience of the glaciers, should certainly have chosen: the next year, Balmat whom I have so often mentioned as a thoroughly prudent man, set off, with my brother and myself, to make the pass under my guidance; but we were driven back by bad weather before we got far on our journey. I think, therefore, it is a pass which does not require so much of purely local knowledge as many others. It makes a very good introduction, in point of difficulty, to the high glacier expeditions, while in magnificence of scenery it is second to very few passes that I know. The expense also is moderate, as compared with that of most of the great glacier passes. Each guide expects twenty francs, and one or two more by way of trinkgeld. The landlord of the inn at Lauterbrunnen is extortionate in his charges for



L. Becker's Patent.

THE VALLEY OF GRINDELWALD.

CHAPTER XIV.

ASCENT OF THE WETTERHORN.

Thou wert to me,
That minute, with thy brow in Heaven,
As sure a sign of Deity
As e'er to mortal gaze was given.
Nor ever, were I destined yet
To live my life twice o'er again,
Can I the deep-felt awe forget—
The ecstasy that thrilled me then!

MOORE.

J'avoue, que si l'on m'avait demandé mon opinion sur la possibilité d'escalader le Wetterhorn de ce côté, j'aurais vraisemblablement déclaré la chose impossible.—DESOR.

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Resolution to ascend the Wetterhorn—"Sampson"—Lauener—Start from Grindelwald—Description of the Wetterhorn—Bohren—The Enge—The Flag—Salute from below—Sunset—Night Encampment—Uncomfortable Quarters—Solemn Scene—Early Morning—Rock difficulties—The Upper Plateau—Pirates—The last Rocks—Hazardous Ascent—Overhanging Cornice—Startling arrival at the Summit—Narrow Edge—Magnificent Panorama—Seen from Grindelwald—Planting the Flag and the Fir-tree—Failure of previous attempts—Awful descent—"To the health of the Wetterhorn"—A race on the Rocks and a roll on the Ice—Troublesome flock of Sheep—Feu de Joie—Safe arrival—Black Faces—Excitement at Grindelwald—Remarks.

TOWARDS the end of my tour in 1854, I was

provisions as well as for most other things, and if I were to make the pass again, I should supply myself with provisions from Frutigen or Interlaken, as the case might be, where they would be procured better and cheaper than at Kandersteg or Lauterbrunnen. At the Hotel de Helvétie (the Post hotel) at Frutigen, as I have already mentioned, I have always experienced in a high degree both honest treatment and genuine hospitality—rare virtues in the Oberland.





anxious to make some more considerable glacier expedition than I had been able to effect during the course of that journey. We were staying at Interlaken; and, as I gazed upon the graceful form of the Jungfrau, which rose opposite the window at which I sat, an irrepressible longing came over me to win that lofty and difficult summit, and look down upon the boundless prospect that must stretch on every side. I had crossed many a lofty Col, and wound my way among many a labyrinth of profound and yawning crevasses. I had slept on the moraine of a glacier, and on the rugged mountain side; but I had never yet scaled any of those snowy peaks which rise in tempting grandeur above the crests of Cols and the summits of the loftiest passes. The ascent of the Jungfrau would be an achievement that would worthily crown the autumn's campaign. I took Balmat into my counsels; and he was delighted at the prospect. He could hardly conceal his satisfaction, though we agreed to say not a word about the matter, until all was in train; and in the course of the evening, he came to me in great exultation. He had fallen in with a Chamouni friend, who had just terminated an engagement, and was about to return home. He was one of the best mountaineers that could be found, Balmat said; of great strength, endurance, courage and prudence, and well acquainted with the glaciers, and would be of the greatest service in any difficult expedition. He was going to stay a day or two at Interlaken, for the chance of further employment, and Balmat would take care not to lose sight of him. I went out and had a chat with him, and found him a man of great size and strength, with an air of modest self-reliance which promised well. His name was Auguste Simond; but it was not long before we

altered it to Sampson, on account of his powerful frame. Balmat said he had seen him hold out a man at the end of his arm.

The next day, we made an excursion to Lauterbrunnen, to take counsel of Ulrich Lauener,\* the most renowned guide of the Oberland, an elder brother of Christian who, two years before, had been my guide over the Tschingel pass. Unfortunately, he was gone to Grindelwald; and when we came back from a visit to the upper end of the valley, near the Schmadribach fall, (an expedition perfectly practicable for ladies, and of no common interest) he was still absent. We, therefore, left word for him to come the next day to Interlaken, and seek us at the Hotel de la Jungfrau. Accordingly, the following afternoon, on returning from the Giesbach Falls, we saw a tall, straight, active, knowing-looking fellow, with a cock's feather stuck jauntily in his high-crowned hat, whom I recognized at once as possessing the true Lauener cut, perched on the railings in front of the hotel, lazily dangling his long legs in the air. He was soon closeted with us, and questioned as to the possibility of ascending the Jungfrau. It could be done, he said, but would take six days, as we must go, by way of the Grimsel, to the back of the chain and ascend from the chalets of Merglen. This was an expenditure of time I was not prepared for; and I asked if we could not mount from the side of the Grimsel. He said it was possible in the height of summer, but not now; it was too late in the season. I asked if it could not be compassed, by taking proper measures. He replied by an expressive shake of the head, and a "Nein, nein, Herr;

\* Johann, mentioned in the last chapter—the eldest of the three brothers—was dead. He had fallen over a precipice, in his eager chase of the chamois, and had perished.

man muss zwei Nächte am Gletscher schlafen; und die Nächte sind zu länge; es macht sehr kalt am Eis." (No, no, Sir; you must sleep two nights on the glacier, and the nights are too long; it is very cold on the ice). I knew something of what a night on the glacier meant, and could quite believe that, with the scanty stock of appliances we should be able to carry, and without the possibility of making a fire, the cold would probably be intolerable, and was reluctantly obliged to abandon the idea of reaching the summit of the Jungfrau, that year. I then asked him if we could attempt the Finster Aarhorn or the Schreckhorn; but he made the same objection. The autumn was too far advanced to sleep on a glacier, which we must do in either case. The Wetterhorn next occurred to me; and I asked him if that were practicable. He answered me with a ready "Ja, ja, Herr," adding that no one had yet succeeded in the ascent;\* but he thought it was possible, and at all events worth the trial.

The resolution was quickly taken; and we appointed to meet Lauener the next day, towards noon, at Grindelwald, whither he was to proceed, early in

\* This was not strictly correct; Desor, in his "Séjours et Excursions dans les glaciers et dans les hautes régions des Alpes," mentions an ascent by two of his guides, and it is stated in "Murray's Hand-Book" that it was ascended in 1845 by a Scotch gentleman named Speer. There are two other peaks—the Rosenhorn and the Mittelhorn—both of which are classed with the peak I ascended under the generic name of "Wetterhörner," and have several times been attained; in fact, they present no extraordinary difficulty, especially from the side of the glacier of Gauli. In the former edition of this volume, I gave some reasons for supposing that the ascent referred to in "Murray" was to one of these peaks; and a letter addressed by Mr. Speer to the *Daily News*, shortly after the publication of this book, confirmed the supposition I had hazarded. Excepting, therefore, Desor's guides, we were the first to stand upon the peak of the Wetterhorn proper.

the day, to make all necessary preparations. The party was to consist of myself, with Lauener, Balmat and Simond for guides; and I gave Lauener authority to engage a porter, should he find it necessary so to do, to help in conveying to our sleeping-place whatever might be required. My wife was to stay with her brother, for that night, at Grindelwald, where we hoped to rejoin them the next evening. Sampson was now spoken to, and retained; and, with a caution to the men to drop no hint of our project at Interlaken, for fear we should ignominiously fail, we parted till the morrow.

The next morning, (16th September, 1854) we started from Interlaken about eight, and proceeded by voiture to Grindelwald, which we found already full of the bustle of preparation. Many idlers were lounging about the doors of the inn, waiting our arrival; and the guides' room was full of people smoking, chattering, and crowding about Lauener, who was packing a great basket with ropes, crampons, and other necessities for an excursion of this sort. He called me aside, and begged permission to retain another guide, one Peter Bohren, of Grindelwald, who he said had been three times that season to the plateau out of which the peaks of the Wetterhörner spring, and would, therefore, prove a valuable auxiliary. I was somewhat annoyed at having this additional expense put upon me, but did not like to oppose the wishes of the leading guide in such a matter, and assented; so that I had four guides, besides which, we were obliged to hire a porter, as there was much to carry, making our party six in all. I ordered dinner for ourselves; and while it was getting ready, went again to look at the preparations. I was a little staggered at their magnitude, and at the serious air of the men, who were far more grave

and quiet than is usual on such occasions ; and I heard so much on every side of the difficulties and dangers we were to encounter, that I almost began to fear we were bent on a rash enterprise. However, I resolved we would run no foolish risks, and if we found the difficulties too great for us prudently to face, we would abandon the undertaking ; but I was seriously afraid that, when I was gone, the people would alarm my wife with exaggerated accounts of the horrors of our track.

The Chamouni men who do these things in a more quiet and business-like manner than their fellows of the Oberland, were quite disgusted with the noise and confusion. Balmat said they made his head ache ; and Sampson applied himself assiduously to encourage my wife, assuring her with a seriousness and solemnity which made us all laugh, that he would answer for my safety with his own, and that, if we did not run into danger, danger would not come to us. Altogether, I was glad when the hour of departure arrived. The landlord wrung Balmat's hand, as we pushed our way through the crowd of loiterers, and issued from the inn. "Try," said he, "to return all of you alive ; but—" he broke off, and shook his head gravely. Lauener and Bohren had pressed me to allow them to take a "Flagge" with them, to plant on the summit. I thought this seemed rather like a tempting of Nemesis, but yielded to their importunities ; and they now told me it was not ready, and asked to wait for it. I inquired where it was being made, and was told, to my surprise, at the blacksmith's. It seemed an odd place to go for a flag ; but I supposed the blacksmith was some mechanic of a versatile genius, who would be applied to for everything out of the common way, and asked no more questions, but told them to stay

behind for the flag, and overtake the rest of us; and then, bidding adieu to my wife and her brother, I set off at once, with Balmat and Sampson, very glad to escape the honours and inconveniences of distinction.

The Wetterhorn consists, speaking very generally, of a huge mass of rock, perpendicular on every side, except where it joins the chain which runs back towards the Grimsel and the main chain of the Bernese Oberland, of both of which it is a kind of outwork. Its precipices are tremendous; I know scarcely any to compare with them; they rise from the valley of Grindelwald in one abrupt and shaggy wall for thousands and thousands of feet; and are crowned by a vast plateau of snow, out of which spring three peaks—the Rosenhorn, nearest the Grimsel, the Mittelhorn and the Wetterhorn proper—which last overhangs the Great Scheideck pass, from Grindelwald to Meyringen, and on that side is, literally, one sheer precipice from the bottom nearly to the summit, which soars proudly aloft, in a sharp, snow-clad peak, that seems to defy approach. Whether this or the Mittelhorn be the higher, is a point as to which some doubts have been entertained. There is not much difference; but we all thought that what slight difference exists is in favour of the sharper and bolder summit of the Wetterhorn proper. It is of little consequence; but, from its position and the uninterrupted nature of the view on the northern side, there cannot be a doubt that the Wetterhorn commands a finer view. There can be as little doubt that it is far more difficult of approach. This was the peak we determined to assail.

The north-western and south-western faces of the mountain are nearly at right angles to one another; and beside the south-western precipices, the upper glacier of Grindelwald streams down to the valley,

guarded on one side by the Wetterhorn, on the other by the scarcely less awful crags of the Mettenberg, a spur of the Shreckhorn. This glacier communicates with, and in fact descends from, the snowy plateau of the Wetterhorn. It pours round the interior extremity of the wall of rock described as forming one of its barriers, and which runs back from the valley of Grindelwald, till it loses itself in the general mass. The plateau of snow, seen from below, appears directly to overhang this flanking defence of the glacier; but, in reality, a broad and deep valley lies between them, the upper end of which is filled partly by a glacier descending from beneath the actual peak of the Wetterhorn, partly by a range of precipices, two or three thousand feet high which, though apparently inaccessible, afford the only means of attaining the plateau. These precipices and the adjoining glacier are completely hidden from the spectator in the valley by the intervening ridge, which rises immediately above the glacier. In the hollow just described, we were to pass the night, and this spot, accordingly, formed the goal of our first day's journey. It was about five hours' walk from Grindelwald.

It was half past one when we left the door of the hotel; the sun was hot, and we walked slowly across the beautiful meadows which clothe the northern slopes of the valley of Grindelwald, and give to it that character of mingled loveliness and grandeur, for which it is so eminently distinguished, and in which, so far as I know, the valley of Fée is its only superior. Balmat and I chatted pleasantly on the many scenes of glory we had witnessed together, in various parts of Switzerland and Sardinia; now and then, we cast an upward glance at the great peak before us, and wondered whether we should find more difficulty in scaling the Wetterhorn, than in descending the icy

arête of the Findelen, whether we should be as well rewarded for our toil as we had been on that eventful day, and whether Lauener would prove as excellent a guide as our good friend of Saas. The moments flew quickly by, and in less than an hour we were overtaken by Bohren, who told us Lauener was still behind; but would soon be on our track.

A few minutes afterwards, we halted for a moment at a chalet near the foot of the glacier, where Bohren's father lived, with a number of his almost numberless progeny, all of whom came forth, and with much interest bid their brother and ourselves, God speed. Bohren took it all very philosophically, borrowed a better pipe than his own, and a larger stock of tobacco, and set off again, smoking like a chimney-pot. Passing the end of the glacier, we made, first of all, for the great wall of rock which forms the side of the Scheideck pass, and after scrambling some distance up its face, by inequalities of the surface scarcely perceptible from below, gained a narrow goat-walk, (known as the Enge) which hugs the brink of terrible precipices, often but an inch or two from the path, and is itself surmounted by others equally formidable, the base of which we could sometimes almost touch with one hand, while a pebble dropped from the other would fall hundreds of feet before it touched the earth. The path, however, when you are on it, does not look so bad as this description might seem to imply; little tufts of grass and brushwood grow freely on the edge of the precipice, and conceal from the eye its depth and its perpendicularity. This wild track leads, with little ascent, for about half an hour, back, in a direction towards Grindelwald, till it arrives at the corner of the mountain, which is almost as square as if it were the work of the mason; it there takes a turn, and continues along the other



face of the mountain, at right angles to its former course. At the angle, there was a little platform of sloping turf, just large enough for us all to lay ourselves down in the sunshine, while waiting for Lauener.

The view down the valley and towards the snowy heights beyond, with the cataract of ice beneath our feet, was abundantly striking; but my eye could not help wandering to the glittering spire of Grindelwald, as my imagination strove in vain to paint the scenes I should have gazed upon, before I was welcomed back again by those I had left behind me. While we lay on the grass, a magnificent avalanche came crashing down the precipices of the Shreckhorn, just across the glacier, and added to the great bank of dead white dust beneath, which told us that we looked upon a track which the avalanches were much wont to take. We had not long to wait; a loud, clear, ringing shout of greeting, and a cheery laugh, announced the presence of Lauener; and it did not require two glances to show why he had sought the blacksmith for the "Flagge." Strapped on his back was a sheet of iron, three feet long and two feet wide, with two rings strongly welded to one of the shorter edges, and he stood leaning upon a bar of the same metal, ten or twelve feet long, and as thick as a man's thumb. He pointed, first to the "Flagge," and then with an exulting look on high, and set up a shout of triumph which made the rocks ring again. Bohren took up the note, and presently a chorus of wild shouts came faintly borne on the air from the valley below. It was Bohren's affectionate relatives, answering from the chalet at the foot of the glacier.

Balmat and Sampson were men of less boisterous spirit; and were far from delighted with either the "drapeau," or the shouting. Sampson went so far

as to call the unwieldy iron machine, which cannot have weighed less than twenty or thirty pounds, a "bêtise," (which may be freely rendered "a confounded piece of nonsense") and Balmat thought it would be time to shout when we here again, the next evening, on our way down.

I could not help admiring Lauener's figure, as he stood there, straight as an arrow, more than six feet high, spare, muscular and active, health and vigour glowing in his open and manly countenance, his clear blue eye sparkling with vivacity and good temper, a slight dash of rough and careless swagger in his attitude and manner, which suited well with the wild scenery around, and made him look like the genius of the place.

The path now directly overhangs the Upper Grindelwald glacier; for some distance you descend, in order to avoid a torrent which leaps down the precipices above, and which there is not room to pass, except near the edge of the glacier. After crossing this stream, you ascend by a bank of moraine, and afterwards, in a slanting direction, along the face of the cliff. The rock is marked in Desor's map as gneiss, but the footing is so bad, that I took it for limestone, the very worst of all rocks to walk over. It is slippery and deceptive, to a degree not readily understood by those who are not familiar with it. "Oh! le mauvais calcaire!" was an exclamation frequent enough on our lips, when compelled to walk in difficult places upon this treacherous stone. In many spots, steps had been hewn in the smooth slopes or slabs of gneiss, without which it would have been very difficult and dangerous to traverse them. As it was, we slipped uncomfortably often, and were very glad to reach a small shoulder of the mountain, round which the glacier comes

pouring from the left, and which is covered with a rich carpet of luxuriant herbage, affording excellent pasturage to the numerous flocks which are driven hither, and into the valley behind, to fatten during the summer months. From this shoulder, we had a few minutes of very steep descent, and then passed beneath a ridge of rocks supporting, like a terrace, the valley we sought. Several clear streams pour in beautiful showers over the ledge thus formed. Above the head of one, a delicate rainbow played fitfully—a glory placed there by the Eternal hand. Further on, the ridge gives way to a bank of earth and boulder-stones, up which we climbed, and entered upon a turf slope, dotted with rocks rolled down from above, and occupying the bed of a broad valley. This valley was closed at the head by a glacier streaming from the base of the peak we aspired to climb, and by a wall of crags as hopeless, to all appearance, as the precipices of the Ghemmi. On our right was a range of lofty rocks, capped by the great plateau of ice, and on our left the ridge up whose opposite side we had fought our way, and behind which the glow of sunset had already flushed the western sky.

Half an hour's ascent over the herbage and among the boulders brought us to a stone under which we were to pass the night. It was a splendid wild scene—no distant prospect, but we were in the very heart of the crags and the ice—surrounded by some of the grandest glaciers, and precipices in the Alps. I climbed alone a neighbouring height; the glacier, by whose side we had ascended, lay white and cold at its base; but the tints of the evening sky over the mountains bordering the valley of Lauterbrunnen were wonderfully rich, while every peak and glacier around was bathed in a flood of purple:

"O'er the vale

Light falls like a thick veil of golden motes,  
And flings a glow, like a whole shower of roses,  
Over the face of the vast precipice.\*  
No sight beside, no motion and no sound—  
Silence, the desert, and that solemn height.  
\* \* \* Heaven's eye, the failing sun,  
Will soon be closed, and Darkness shall keep watch  
Over her slumbering sister, Solitude."

I cast one look towards that majestic summit upon which I hoped, before to-morrow's sunset, to have stood, and returned to more practical cares and occupations, stimulated by a pleasing excitement, and filled with all that mingled wonder, delight and awe, which takes possession of the soul, when evening falls amidst the solemn silence of these Alpine fastnesses, and which no man can, or would, repress.

Night opes the noblest scenes, and sheds an awe,  
Which gives these venerable scenes full weight,  
And due reception in the intender'd heart.

I found our sleeping-den to consist of a low, arched cave, formed by two or three rocks, one of which, somewhat hollow on the under side, had fallen curiously upon the others, so as to make a kind of vaulted roof. Two sides were supplied by the boulders on which it rested, and in the course of time, the earth had so accumulated about them, that all round their bases they were hermetically sealed, and the ground outside was two or three feet higher than the floor of the cavern. Mould had also ga-

\* I hope the Rev. Mr. White, should he ever chance to see these pages, will pardon the liberty I have taken, in altering two or three words in his very beautiful lines, to make them suit the context better than the original would have done. The alteration has been made, I can assure him, in no spirit of disrespect to the author of some of the most touching and poetical dramas that the modern stage has produced.

thered about their points of contact, so that the holes and crannies were filled up, and the shelter was complete. Only one narrow entrance was left, and the care of the hunters had blocked this up with stones, which we removed. There was barely room for one person to enter at a time, and we were obliged to creep backwards through the aperture. Within, the hunters, whose calling had led them to sleep in this natural chamber, had strewn the floor of earth with a thick covering of short mountain hay, which gave an unexpected look of warmth and comfort to the place. It was small enough for half a dozen men to sleep in; it was difficult to see how we should all pack; but at all events, we must try. Our first care—that is Balmat's and mine—was to inspect the blankets before it was quite dark; for we did not think it likely that mine host of Grindelwald, would have lent us his best and cleanest; and it turned out to be as well that we had done so. We were not left quite "all alone by ourselves," we found, when we came to lie down. Certain reminiscences of chalet life were obtruded upon us, as it was; but we should have been much worse off, if we had not made "la chasse" to begin with.

The men had brought up with them a stock of wood—for none was to be grubbed up here, as at the Tacul; and abundance of fresh water was supplied by a brawling glacier stream, which leaped and bounded over a rocky bed, by the side of our queer little hut. A fire was lighted outside, and some good black coffee made. The supper was not so luxurious as at the Tacul. We felt the want of that refinement of good cheer, which the company of a lady gives a fair excuse for indulging in. There was no boiled cream, or cold chicken, this time. A mug of coffee without milk, a hunch of cold veal, and a log

of sour bread, carved with one's pocket knife, formed the evening repast. But it was a cheerful meal, and a hearty one, for all that; and the great, bright stars looked down upon us with a merry twinkle in their roguish eyes, as if they too enjoyed the fun. There was no moon, and the vast, white glaciers gleamed faintly through the night, like the battlements of phantom-castles.

At length, the supper was over; the coffee pot and cups were rinsed clean in the noisy stream; the fire was carefully trodden out, that none of our scanty stock of fuel might be wasted; a light was struck; and one by one we entered the cavern, and laid ourselves down in our places. They gave me what they meant to be the place of honour—at the opposite extremity of the cavern, away from the entrance; but it was where the floor was highest, and the roof was lowest, (and it was nowhere high enough to allow a man to stand upright). When we were all arranged, the candle was put out, and we were left in the thick darkness. Suddenly, the three Swiss struck up a hymn in German. They sang well; there was a good tenor and a rich, manly bass. The effect, in that strange place, in “darkness visible,” couched as we were beneath the shadows of the eternal mountains, was inexpressibly solemn; when the song of praise was sung, no one spoke, and presently the deep breathing all around announced that most of them were sunk in sleep.

I must say, I was desperately uncomfortable; they had built up again the aperture by which we entered, and what with the smell of the hay, and the presence of so many persons, the air soon became insufferably hot and close; a great fellow (Lauener, I think) had laid his head on my feet, and when I moved further back to get rid of him, he followed,

even in his sleep, and insisted upon using me for a pillow. I moved back half-a-dozen times, but invariably with the same result, and at length I was driven into the corner; I could retreat no further, the roof was cold and clammy, not six inches from my face, and the air stifling. Had I been near the entrance, I should have made my escape; but I could only do that, by walking over the prostrate bodies of four or five other men, in their first deep and sweet sleep, after a good day's work, and with we knew not what before them on the morrow. I waxed restless and feverish, and all chance of sleep deserted me. The cold veal seemed to rise up in judgment upon me; and I thought of "Pierre L'Echelle," and his potato supper. I passed a miserable night. I could not, however, fail to be struck with the solemnity of the place and time; all night long, I lay in palpable darkness, beneath a hollow rock, and on a bed of stones, with a foaming glacier torrent brawling past my head, not six feet from me, save for the noise of which, all nature was still and silent as the grave.

This profound tranquillity, however, was broken by frequent and startling interruptions;

All in a moment, crash on crash,  
From precipice to precipice,  
An avalanche's ruins dash  
Down to the nethermost abyss,  
Invisible! The ear alone  
Pursues the uproar, till it dies;  
Echo to écho, groan to groan,  
From deep to deep replies.

Silence again the darkness seals,  
Darkness that may be felt.

It was eight o'clock, when we entered the cave: I lay uneasily for many hours, but at length I could endure it no longer; I spoke to Balmat, who was

near me, and found he too was very uncomfortable, and we agreed to make our escape. We got across the sleepers, somehow, knocked away the stones, and scrambled out. Oh ! how grateful was that cool fresh air ! how refreshing that draught at the mountain torrent ! The stars were shining as I never saw them shine before, like so many balls of fire in the black concave ; the glaciers were sparkling in the soft light of the waning moon, now in her fourth quarter. It was just two o'clock, but not cold, and a bracing air blew briskly, yet pleasantly, from the north-west. I had been up before the sun, many a morning, on many a mountain height, and had seen, I thought, almost every phase of Alpine night-scenery ; but so beautiful a nocturnal view as this I never yet had beheld ; it spoke well for the promise of the day. Presently, some of the men came out, a fire was kindled, and tea and coffee made. I stripped, and had a bathe in the dashing torrent ; it was icy-cold, but did me more good than the weary night in the hole. Balmat and I were urgent with Lauener to start as early as possible, for we all expected a long day, and we wished to reach the snow while it was yet crisp ; but he refused to start before half-past four, saying that in an hour we should reach the glacier, and that the moon was not bright enough to light us across it. It was still dark when, at the hour appointed we set off and for some time we groped our way by the help of a lantern. During the first hour and a half, we mounted amongst a mass of débris, and amidst great boulders of rock, which lie below, or form part of, the terminal moraine of the glacier. It was disagreeable walking in the dark, and we were frequently stumbling and falling. Long before we reached the glacier, day had begun to dawn, and a cold, clear grey was stealing over the sky.



“Lo! on the eastern summit, clad in grey,  
Morn, like a horseman girt for travel, comes;  
And from his tower of mist  
Night’s watchman hurries down.”

I could not help thinking, despite Lauener’s precautions, that we might perfectly well have traversed the glacier before daybreak, as there was but one crevasse of any magnitude, which we crossed without much difficulty. We were nearly an hour upon the ice, on leaving which we approached the abrupt wall of rock I have spoken of before, as affording the only means of access to the upper plateau. It turned out to be not absolutely precipitous, but full of small ledges and steep slopes covered with loose stones and schisty débris, which gave way at every step. The substratum appeared to be a schistaceous gneiss, very friable and much disintegrated by the weather; so that every particle had to be tried, before it was safe to trust hand or foot to it. It was extremely steep; very often, the ledges which gave us foot-hold were but an inch or two wide, and throughout, it was a marvel to me that rocks which, from a short distance off, looked such absolute precipices could be climbed at all. At length, we came to a very singular formation. Standing out from a nearly perpendicular wall of rock were a series of thin parallel wedges of rock, planted, with the thin edge upwards, at right angles to the body of the mountain, and separated from one another by deep intervening clefts and hollows. Each of these was two or three hundred feet in height, seventy or eighty in width at the base, but narrowing off to the thickness of a few inches, and presenting, at the top, a rough and jagged ridge, forty or fifty feet long, by which we must pass, to reach the plateau beyond. We first climbed to the top of one of

these wedges, and then had to make our way along its crest.

It was nervous work ; a good head, a stout heart, a steady hand and foot were needed. Lauener went first, carrying a rope, which was stretched by the side of the ridge so as to form a protection to the next passer. Bohren went next ; then came my own turn. It was certainly the worst piece of scrambling I ever did. The rock was much shattered by exposure to the frost and snow, and there was hardly a single immovable piece, along the whole length. Every bit had to be tried before it was trusted to, and many were the fragments (some, as large as a shoulder of mutton, and something of that shape) which came out, when put to the test, and went crashing down till out of sight, making an avalanche of other stones as they fell. I passed my right arm over the top of the ridge, and thus secured myself, having the rock between that arm and my body, on one side, and the rope stretched below me on the other. Every one had to pass much in the same way, and it was a long quarter of an hour before we were all safely landed on the snow beyond.

A few minutes later, we came to the brink of a precipice on the Grindelwald side, and here, for the first time to-day, we had a view of that rich and verdant valley, which looked lovelier than ever, by contrast with the desolation that surrounded us. We could not only distinguish the village, but, as we thought, the inn, which, with the telescope, we made out easily enough. It was from the brink of a dizzy height that we looked down ; stones that we kicked over were out of sight in a moment, and were heard, at distant intervals, striking against the precipice as they fell, till the sound gradually died away in the silence of distance. A small quantity of black

débris juttet out of the snow, upon which we sat down, at nine o'clock, to take our morning meal. I had been ill with indigestion, all the way up, but thanks to the fresh air of the mountains was at length recovering, and felt quite ready for a meal; but, to my mortification, I found all the meat they had brought tainted with garlic—the object of my peculiar detestation. I could not eat a mouthful, and a crust of bread, from time to time, with a cup of mingled wine and snow, was all my food throughout this laborious day.

At this spot, we left everything we had brought with us, except a flask of brandy and our alpenstocks. The sticks the Oberland men carried were admirably suited for their work. They were stout pieces of undressed wood, with the bark and knots still upon them, about four feet long, shod with a strong iron point at one end, and fixed at the other into a heavy iron head, about four inches long each way; one arm being a sharp spike, with which to hew out the ice, where needed, the other, wrought into a flat blade, with a broad point, something like a glazier's knife. This part of the instrument was extremely useful in climbing rocks. It ran into clefts and fissures too high to be accessible, or too small to admit the hand, and, once well planted, formed a secure and certain support. This kind of alpenstock is hardly ever seen at Chamouni. Our ice hatchet on the Col du Géant and the Col Imseng was perfectly different, though better adapted to the mere ice-work we had then to perform; and the great utility of the Oberland implement called forth repeated expressions of admiration from the Chamouni men, to whom it was new. The Swiss men put on their crampons and offered some to us; but we (that is, Balmat, Sampson and myself) preferred the double-headed points I have

mentioned before, of which we had brought a stock from Chamouni, and which we screwed into our boots. Crampons are hardly safe things to wear, unless you are accustomed to them, and I found Balmat, who knew perfectly well how to use them, uniformly reject them. We now fastened ourselves all together with ropes, and commenced the last ascent. It lay near the edge of a long and steep arête, connecting the Mittelhorn with the Wetterhorn; at the place where we gained the plateau, the ridge was nearly level, but almost immediately began to rise sharply towards the peak. We were now at the back of the mountain, as seen from the valley of Grindelwald, which was, of course, completely hidden from the view. When we had stopped to take something to eat, we were at an extremity of the ridge which runs up to the actual summit, and, as it were, peeped round a corner. We were not to see the valley again, till we stood upon the summit.

The ascent was rapid, and commenced in deep snow; but it was not long before the covering of snow became thinner, and the slope more rapid, and every minute a step or two had to be cut. In this way, we zig-zagged onwards for nearly an hour, in the course of which we made, perhaps, a thousand feet of ascent, having the satisfaction, every time we could look round, to see a wider expanse of prospect risen into view. About ten o'clock, we reached the last rocks; a set of black, sloping, calcareous crags, whose inclination was hardly less than that of the glacier, left bare by the melting of the snow; they were much disintegrated by the weather, and the rough and shaly débris on their surface was, for the most part, soaked with the water that trickled from the snows above. Here we sat down and unharnessed ourselves. It was neither too hot nor too

cold. A gentle breeze tempered the heat of the sun, which shone gloriously upon a sparkling sea of ice-clad peaks, contrasting finely with the deep blue of the cloudless heaven.

While we had been making our short halt at the edge of the plateau, we had been surprised to behold two other figures, creeping along the dangerous ridge of rocks we had just passed. They were at some little distance from us, but we saw that they were dressed in the guise of peasants, and when we first perceived them, Lauener (who was a great hunter himself) shouted excitedly, "Gems-jägers!" but a moment's reflection convinced us that no chamois-hunter would seek his game in this direction; and immediately afterwards, we observed that one carried on his back a young fir tree, branches, leaves and all. We had turned aside a little to take our refreshment, and while we were so occupied, they passed us, and on our setting forth again, we saw them on the snow slopes, a good way ahead, making all the haste they could, and evidently determined to be the first at the summit. After all our trouble, expense and preparations, this excited the vehement indignation of my Chamouni guides—they declared that, at Chamouni, any one who should thus dog the heels of explorers and attempt to rob them of their well-earned honours would be scouted; nor were they at all satisfied with the much milder view which the Oberlanders took of the affair. The pacific Balmat was exceedingly wroth, and muttered something about "coups de poing," and they at length roused our Swiss companions to an energetic expostulation. A great shouting now took place between the two parties, the result of which was, that the piratical adventurers promised to wait for us on the rocks above, whither we arrived very soon after them.

They turned out to be two chamois-hunters, who had heard of our intended ascent, and resolved to be even with us, and plant their tree side by side with our "Flagge." They had started very early in the morning, had crept up the precipices above the upper glacier of Grindelwald, before it was light, had seen us soon after daybreak, followed on our trail, and hunted us down. Balmat's anger was soon appeased, when he found they owned the reasonableness of his desire that they should not steal from us the distinction of being *the first* to scale that awful peak, and instead of administering the fisticuffs he had talked about, he declared they were "bons enfants" after all, and presented them with a cake of chocolate; thus the pipe of peace was smoked, and tranquillity reigned between the rival forces.

Once established on the rocks, and released from the ropes, we began to consider our next operations. A glance upwards, showed that no easy task awaited us. In front rose a steep curtain of glacier, surmounted, about five or six hundred feet above us, by an overhanging cornice of ice and frozen snow, edged with a fantastic fringe of pendants and enormous icicles. This formidable obstacle bounded our view, and stretched from end to end of the ridge. What lay beyond it, we could only conjecture; but we all thought that it must be crowned by a swelling dome, which would constitute the actual summit. We foresaw great difficulty in forcing this imposing barrier; but after a short consultation, the plan of attack was agreed upon, and immediately carried into execution. Lauener and Sampson were sent forward to conduct our approaches, which consisted of a series of short zig-zags, ascending directly from where we were resting to the foot of the cornice. The steep surface of the glacier was covered with snow;

but it soon became evident that it was not deep enough to afford any material assistance. It was loose and uncompacted, and lay to the thickness of two or three inches only ; so that every step had to be hewn out of the solid ice. Lauener went first, and cut a hole just sufficient to afford him a foot-hold while he cut another. Sampson followed, and doubled the size of the step, so as to make a safe and firm resting-place. The line they took ascended, as I have said, directly above the rocks on which we were reclining, to the base of the overhanging fringe. Hence, the blocks of ice, as they were hewn out, rolled down upon us, and shooting past, fell over the brink of the arête by which we had been ascending, and were precipitated into a fathomless abyss beneath. We had to be on the *qui vive* to avoid these rapid missiles, which came accompanied by a very avalanche of dry and powdery snow. One, which I did not see in time, struck me a violent blow on the back of the head, which made me keep a better look out for its successors. I suggested, that they should mount by longer zig-zags, which would have the double advantage of sending the débris on one side, and of not filling up the footsteps already cut with the drifts of snow. Balmat's answer, delivered in a low, quiet tone, was conclusive. "Mais où tomberaient-ils, monsieur, si, par un malheur, ils glissaient? A présent, il y aurait la chance que nous pourrions les aider; mais si on glissait à côté—voilà, monsieur!" pointing to a block of ice which passed, a little on one side, and bounded into the frightful gulf.

For nearly an hour, the men laboured intently at their difficult task, in which it was impossible to give them help; but, at length, they drew near to the cornice, and it was thought advisable that we should begin to follow them. Balmat went first, then I, then Bohren,

and the two chamois hunters, who now made common cause with us, brought up the rear. We were all tied together. We had to clear out all the foot-holes afresh, as they were filled with snow. A few paces after starting, when we were clear of the rocks, I ascertained the angle of the slope, by planting my alpenstock upright, and measuring the distance from a given point in it to the slope, in two directions, vertically and horizontally. I found the two measurements exactly equal; so that the inclination of the glacier was  $45^{\circ}$ ; but at every step it became steeper; and when, at length, we reached the others, and stood, one below another, close to the base of the cornice, the angle of inclination was between  $60^{\circ}$  and  $70^{\circ}$ ! I could not help being struck with the marvellous beauty of the barrier which lay, still to be overcome, between us and the attainment of our hopes. The cornice curled over towards us, like the crest of a wave, breaking at irregular intervals along the line into pendants and inverted pinnacles of ice, many of which hung down to the full length of a tall man's height. They cast a ragged shadow on the wall of ice beyond, which was hard and glassy, not flecked with a spot of snow, and blue as the "brave o'erhanging" of the cloudless firmament. They seemed the battlements of an enchanted fortress, framed to defy the curiosity of man, and to laugh to scorn his audacious efforts.

A brief parley ensued. Lauener had chosen his course well, and had worked up to the most accessible point along the whole line, where a break in the series of icicles allowed him to approach close to the icy parapet, and where the projecting crest was narrowest and weakest. It was resolved to cut boldly into the ice, and endeavour to hew deep enough to get a sloping passage on to the dome beyond.



He stood close, not facing the parapet, but turned half round, and struck out as far away from himself as he could. A few strokes of his powerful arm brought down the projecting crest, which, after rolling a few feet, fell headlong over the brink of the arête, and was out of sight in an instant. We all looked on in breathless anxiety; for it depended upon the success of this assault, whether that impregnable fortress was to be ours, or whether we were to return, slowly and sadly, foiled by its calm and massive strength.

Suddenly, a startling cry of surprise and triumph rang through the air. A great block of ice bounded from the top of the parapet, and before it had well lighted on the glacier, Lauener exclaimed, "Ich schaue den blauen himmel!" (I see blue sky!) A thrill of astonishment and delight ran through our frames. Our enterprise had succeeded! We were almost upon the actual summit. That wave above us, frozen, as it seemed, in the act of falling over, into a strange and motionless magnificence, was the very peak itself! Lauener's blows flew with redoubled energy. In a few minutes, a practicable breach was made, through which he disappeared; and in a moment more, the sound of his axe was heard behind the battlement under whose cover we stood. In his excitement, he had forgotten us, and very soon the whole mass would have come crashing upon our heads. A loud shout of warning from Sampson, who now occupied the gap, was echoed by five other eager voices, and he turned his energies in a safer direction. It was not long before Lauener and Sampson together had widened the opening; and then, at length, we crept slowly on. As I took the last step, Balmat disappeared from my sight; my left shoulder grazed against the angle of the icy

embrasure, while, on the right, the glacier fell abruptly away beneath me, towards an unknown and awful abyss; a hand from an invisible person grasped mine; I stepped across, and had passed the ridge of the Wetterhorn!

The instant before, I had been face to face with a blank wall of ice. One step, and the eye took in a boundless expanse of crag and glacier, peak and precipice, mountain and valley, lake and plain. The whole world seemed to lie at my feet. The next moment, I was almost appalled by the awfulness of our position. The side we had come up was steep; but it was a gentle slope, compared with that which now fell away from where I stood. A few yards of glittering ice at our feet, and then, nothing between us and the green slopes of Grindelwald, nine thousand feet beneath. I am not ashamed to own that I experienced, as this sublime and wonderful prospect burst upon my view, a profound and almost irrepressible emotion—an emotion which, if I may judge by the low ejaculations of surprise, followed by a long pause of breathless silence, as each in turn stepped into the opening, was felt by others as well as myself. Balmat told me repeatedly, afterwards, that it was the most awful and startling moment he had known in the course of his long mountain experience. We felt as in the more immediate presence of Him who had reared this tremendous pinnacle, and beneath the “majestical roof” of whose deep blue Heaven we stood, poised, as it seemed, half way between the earth and sky.

In a few minutes, Lauener and Sampson had cut away a length of about ten feet of the overhanging cornice, and we hastened, for the sake of security, to place ourselves astride on the ridge that was exposed. It was a saddle, or more properly, a kind of knife-

edge, of ice ; for I never sat on so narrow-backed a horse. We worked ourselves along this ridge, seated ourselves in a long row upon it, and untied the ropes. After a few minutes, when we had become more accustomed to the situation, I ventured to stand upright on that narrow edge—not four inches wide—and then, at length, I became fully aware of the extent and magnificence of the panorama. To the east and south lay a boundless sea of mighty peaks, stretching from the great Ortler Spitz, and his giant companions of the Tyrol, in the solemn distance, past the fine group of the Monte Leone, the many summits of Monte Rosa, and the sharp peak of the Weisshorn, towards the western extremity of the Pennine chain. Mont Blanc was hidden behind the mountains of the Oberland, whose stupendous masses looked but a stone's throw from us. Between us and the far off snows of the Ortler Spitz, lay group behind group of the mountains of the Grisons and of Uri, green at the base, dark and craggy above, and capped by broken patches of glacier and snow, intersected by numerous deep and narrow valleys, at the foot of which tortuous mountain torrents and glacier streams glittered like silver threads.

The long range stretching back from the Wetterhorn towards the Grimsel seemed, from this point of view, to join on with the clustered peaks beyond the valley of the Rhône. In this direction, we gazed upon an icy sea, in which scarcely one islet of rock was perceptible. The summit nearest to us was the Mittelhorn, seen edgeways, rising majestically, in a kind of half-dome, from the plateau, and connected with us by the arête, along whose precipitous brink we had won our hard fought way. Immediately beneath this arête lay a fearful abyss, terminating in the upper basin of the glacier of Rosen-

lauri, broken and rifted into a chaos of crevasses, almost as formidable as those of the Col du Géant. It was all dazzling white, and there was little to remind us of those exquisite deep blue vaults of transparent ice, for which the lower end of the glacier is so justly celebrated.

The immediate group of the Oberland presented a scene of indescribable sublimity. The Shreckhorn was the nearest of these mountains, a massive pyramid of gneiss, chequered with patches of snow and glacier, which clung to the ledges and lay amongst the recesses of its precipitous sides. Between the Schreckhorn\* and the Eigher was seen the magnificent amphitheatre of glacier and precipice—one of the finest in the Alps—which bounds, on the south-east, the plateau of the Lower Grindelwald glacier, marked by the sharp peaks of the Viescher Hörner; and then came the wedge-like form of the Eigher; rising in a thin slice a thousand feet above the height on which we stood. This mountain, too steep to allow more than a thin and broken coating of snow to rest upon its northern side, presents, from this point of view, a peculiarly majestic and imposing appearance. It appears to raise itself directly from the valley south of the Wengern Alp, and to shoot upward, almost in one unbroken and uniform plane, from the base to the summit. From this distance, it seemed as if anything let slip from the top would slide many thousands of feet, before it met with any obstacle to divert it, in the least, from its original direction.

The other mountains of the Bernese chain were nearly in a line with us and the Eigher, but we saw the graceful summit of the Jungfrau under a new and

\* I have no recollection of seeing the Finster Aarhorn, and I find no note of it. It lies immediately behind the Shreckhorn, and probably was hidden by that massive mountain.

interesting aspect. The Silberhörner, instead of appearing, as they generally do, close to the face of the Jungfrau, and almost on the same line, stand boldly out as separate peaks, divided from the summit by a broad and deep valley of crag and ice.

Turning towards the north, we were greeted by a scene of pleasing contrast to this majestic, but desolate, spectacle. Far as the eye could reach or the mind could grasp, lay a vast expanse of verdure-covered mountains and fertile plains. A soft, rich green was the pervading colour of the landscape, and peace and plenty the prevailing ideas which it suggested. The heights above the valley of Lauterbrunnen, capped here and there with snow, lay next to the mighty barrier of ice and crag, which seemed to cry "Here shalt thou cease," to the wave of life and fertility which was borne upward towards it from the great plain of Switzerland, on the gradually increasing heights which border the Emmenthal, the valley of Lauterbrunnen and the Kanderthal. Conspicuous in the north-west, were the well-known and characteristic forms of the Niesen and the Stockhorn; then came the plain of Switzerland, bounded by the distant Jura,\* the lake of Thun, peacefully nestled beneath a chain of mountain ramparts, the fir-clad group about the Brünig, the Lakes of Lungern, Sarnen, Lucerne, Zug and Zürich, forming a chain of dark blue islands in that mighty ocean of green. The Rhigi was with some difficulty distinguished, amidst a multitude of summits of nearly equal altitude; to the east of which, the mountains rise again, and snow-capped peaks, in distant Schwyz and Glarus, mark the approach, in this direction, to the vast domains where frost and ice hold sway. I was very much struck with the nearer prospect eastward,

\* Varying in distance from fifty to a hundred miles.

where it was curious to look down into valley after valley, and follow them as on a map. We were so high that we could trace, in this manner, the course of pass after pass in several directions, from the foot of the ascent to the crest or col of the passage; many of them wound through valleys, both sides of which we could see from top to bottom. I never, from any other point, got so good an idea of the grouping of mountains, and of the manner in which the passes lie amongst them.

After all, however, the most interesting and striking part of the view lay nearer to us. It was impossible long to turn the eye from the fearful slope at the top of which we stood. For twenty or thirty yards below us, the glacier curved away steeper and steeper, until its rounded form limited our view, and prevented our seeing what shape it took, beneath. Nothing else broke the terrific void, and the next objects on which the eye rested were the green pastures of the Scheideck, nearly two miles of absolute depth below us. This was the prospect that had startled us so much, when we mounted the breach Lauener had effected, and made our hearts beat quicker with a solemn and strange emotion. The imagination shrank from contemplating the abyss, and picturing to itself the fearful precipices which must be beneath, to raise us to that dizzy height.

Further down the valley lay the peaceful Grindelwald, and I thought I could even distinguish the inn. We did not venture to use our telescopes, as we did not wish to run any chance of weakening the steadiness of the eye, on which we had still to tax to the uttermost. I thought that, most probably, my wife and brother-in-law would be watching from below, and I took off my hat and waved it many times round my head; the action, however, was not per-

ceived ; but they had recognized us, when we appeared on the summit, as was proved by their being able to tell us correctly in what order we arrived. The chamois hunters puzzled them dreadfully, and were a mystery to them, till we could explain the phenomenon ; but the rest of us were easily distinguished. Sampson was the tallest and broadest, Bohren the shortest of the party, Balmat had a blouse, and I a pair of white flannel trousers.

The chamois hunters and Bohren, while I was standing up, began an unearthly series of yells, which broke discordantly upon the solemnity and silence of the scene ; but the prudent Balmat instantly checked them, and I was glad of it, for the ringing shouts produced a strange and unpleasant effect upon the nerves, which must not now be disturbed unnecessarily. "Il ne faut jamais s'écrier dans les hautes sommités," was Balmat's comment ; "on ne sait jamais ce qui peut arriver." Lauener did not need the caution ; brave as a lion, active as a chamois, the best hunter and the best guide, in the Oberland, he could hardly conceal a strong emotion. Balmat assured me—and neither did he, nor do I, mention it as any disparagement to his manliness—that he saw him, and felt him, tremble like a child, when he helped him through the gap. No wonder : his elder brother, Johann, who was reputed a more bold and adventurous mountaineer than even Ulrich, had perished, but a few months before, while hunting his favourite game, by slipping over the edge of a less dangerous precipice.

While I was standing on the ridge, where there was not room to place my two feet side by side, the guides were busy driving the long iron bar of the "flagge" into the solid ice. I took my turn at it for a minute ; it was planted five or six feet deep in

the glacier, and seemed firm enough to defy the tempest, even at this aerial height; the broad sheet of iron was fitted in its place, resting on a rim in the staff, on which it played freely; and, finally, was secured with a nut, screwed on to the top. It was then turned towards Grindelwald, whence, as well as from all the country round, it long remained a conspicuous object. It was planted a few paces nearer to Grindelwald than the opening where the cornice was cut away, so as to have the white wall of snow behind for a background, by which means it was rendered far more easy to be seen. Side by side with it, the chamois hunters planted their green tree which had a strange appearance, as if growing vigorously out of a soil of ice. While standing up, I dropped a glove; it rolled for a few yards down the bank of glacier on the Grindelwald side, and there rested against a crust of snow. Despite my earnest requests, and even commands, to the contrary, Bohren insisted upon cutting his way down, and regaining it; a piece of folly and rashness of which I was an unwilling spectator.

When I sat down again, Balmat pointed out to me what I had not observed before—a flag just like ours, planted deep in the ice, a few feet below, on the side we had ascended, and near the end of the ridge. We knew that the ascent had been attempted that year by a gentleman whose flag still floated over the more attainable peak of the *Mittelhorn*; but no better comment could be devised on the reality and greatness of the difficulty we had overcome in passing the cornice. These explorers had actually arrived within ten feet of the summit; but had been arrested by that frowning barrier of overhanging ice. They had attempted to get round the eastern end of the ridge; but had been foiled by the excessive steep-



ness of the arête in which it terminated, had planted their flag where we found it, and had returned without any idea of their proximity to the summit. This fact Balmat learned subsequently, happening to meet the gentleman—a very intrepid and hardy mountaineer—in another part of Switzerland. They had supposed, as we had from below, that the actual summit would be found to consist of a dome. I had spoken, the day before, to a man who professed to have been one of his guides; but I am inclined to think he was telling a lie, as I did not find one of the kind of difficulties which he described as the most formidable—namely, those presented by deep and dangerous crevasses—and he said little or nothing about the passage of the rocks and the last ascent, which were the real difficulties of the day. Balmat made me crawl along the edge of the ice, and shake the “drapeau” of our predecessors, in assertion of our own supremacy. In doing so, I caught a glimpse of the arête below, ending in the glacier of Schwarzwald, which made me shudder.

We spent about twenty minutes on the summit; we arrived at twenty minutes past eleven, and remained till twenty minutes to twelve; long enough to impress indelibly upon the memory the immense and varied panorama we had beheld.\* It was now necessary to descend the slope by which we had mounted. Just as we were about to start, Sampson said, “Maintenant, à la garde de Dieu!” an exclamation for which Balmat took him severely to task. Balmat was right. No sound should have

\* Part of the details of the foregoing picture are necessarily told from memory. It is possible, therefore, that as to some of the less important features in the view, an error may here and there occur. I am satisfied, however, of the general fidelity of my account, and have a strong belief that it is correct, even in the detail.

been uttered which could tend to shake the nerves, or aid the imagination in magnifying the danger of the descent. I proposed that we should tie ourselves together again; but they all dissented, thinking, as they told me afterwards, that an accident to any one would, in that case, have involved the destruction of the whole party. Going down proved, as might be expected, a worse task than ascending; the difficulty and danger stared us in the face; it was a trial for the stoutest nerves, to look down the steep curtain of glacier, on which a single slip might (perhaps must) have entailed fatal consequences. Balmat and Simond both urged me to descend with my face to the ice, so that I might not see what lay before me; but I felt confident of my own presence of mind, and preferred to look my work boldly in the face.

The descent was conducted with extreme caution. Before we took a step, we planted our alpenstocks firmly in the glacier, and laid hold of them close to the snow, or cut holes with them, into which we could put a couple of fingers, and so get a grasp of the ice. When we were about fifty yards on the way down, some one remembered that we had forgotten to drink to the health of the Wetterhorn. The first impulse was unanimous, to return; but second thoughts told us that would be an unjustifiable imprudence, and we rectified the omission, then and there, as we stood on the ice, each tossing off, bareheaded, a draught of brandy and snow to "the health of the Wetterhorn." Then we continued our descent with the same care and deliberation, and in about half an hour, reached the rocks on which we had lain so long, while Lauener and Sampson were toiling at the steps. We looked back from this place, with no small pride and satisfaction;

for now the worst part of our day's work was over. Presently, we were able to descend much more rapidly, and by about a quarter to one we were at the spot where we had left our provender. Here we sat down for a hearty meal, though I was still limited to bread. We shared our stock with the two hunters, who had brought little with them, and were very glad of some wine and meat, though flavoured with garlic. They had by this time completely established their character as "bons enfants," and were all the best friends possible. We drank again more solemnly and deliberately to "the health of the Wetterhorn," in a rousing bumper of iced red wine, and, this time, Balmat raised no objection to as loud a shout as human lungs could utter. Lauener astounded us all by the strength and clearness of his manly voice.

We stayed here but half an hour, and then crossed again, with extreme care, the dangerous ridge of rocks, which was the last serious difficulty we had to encounter. Once at the base of the wedge to which it belonged, we found the abundance of small loose stones which had impeded us so much in the morning, when climbing up the steep slopes of rock on which they lay, afford us the greatest facilities for descending. We jumped upon a bank of them, and stones and man slid down together a dozen feet at a time, till stopped by some ledge, which we always took care to look out for, before taking a leap. In this way, we came down at a tremendous pace. Till now, we had been in doubt as to whether we should be able to reach Grindelwald that evening. My wife had been told to prepare herself for our being absent a second night; for all agreed, that if five o'clock should pass while we were still above our sleeping-place, it would be madness to think

of descending the slippery rocks of gneiss, and the narrow goat-track of the Enge, in a waning light. It was not till they saw how I could manage the descent over the rocks beneath the plateau, that the Oberland men would pronounce an opinion as to the hour at which we should arrive; had I been nervous or slow, they said, we must have taken hours to pass this part, and might not have arrived at the cavern till nearly dusk. When they saw me lead the way, and run Lauener a race down here, they shouted for joy, and exclaimed that we should be at Grindelwald by eight.

We reached the glacier, at a point higher than where we had quitted it in the morning. It was a grand place for a glissade. There was but one crevasse of any consequence, some distance below, and I marked a wide bridge of snow and ice in the middle, which made it perfectly safe in that direction. Accordingly, I made for a point in the glacier above this bridge, and having gained it, I took a little run, planted my alpenstock behind me, and went sliding down at railroad pace. Lauener was behind, and never having been out with me before, was not assured that I knew what I was about, and how to direct my course towards the point where the crevasse was safe. Accordingly he set off after me with a shout of "Halte! halte!" and overtaking me, seized me by the arm to stop me. The consequence was, that we both rolled over together, and had the greatest difficulty in stopping ourselves. My hand, grasping my alpenstock, got ground between his heavy body and the hard, granulated snow; the skin was taken off all the knuckles; but fortunately we succeeded in checking our descent, with no worse result. The crevasse was soon passed, we slid and ran down the glacier as hard as we

could go, and what had taken us an hour to ascend in the morning, was descended in a few minutes. The steep bit of turf, strewn with boulders, which lay below the glacier, we found to be now soaked with the drainings of the snow above, and very slippery. Most of us had a tumble as we passed rapidly down towards our hut, but a slip mattered little now; and we actually reached the sleeping-place at ten minutes to three. Here we picked up our porter, who had stayed for the sake of company on the way back. Our early return, after so successful an enterprize, put us in the highest possible spirits; and a bottle of champagne which I had brought up, and reserved to be drunk only in honour of success, added to our festivity. We stayed but half an hour, and then, building up again the entrance of the cavern, to keep it dry and clean for future wanderers, collected our traps, and set forth once more, lighter by the iron standard, and by many pounds of bread, cheese, meat, wine and coffee, than when we had arrived thither, some twenty hours before.

So bare and exposed a rock as the upper part of the Wetterhorn consists of, is not likely to support much vegetable life. I looked everywhere for specimens of its flora; but above the first glacier, I found only one plant—a beautiful specimen of *campanula cenisia*, whose delicate flowers made beautiful spots of bright blue against the dark and gloomy crags around. Between the glacier and the sleeping-place, the gentians flourished abundantly, though they were not fine. There appeared, however, to be three species only, *acaulis*, *verna* and *nivalis*.

When we came to the bad place, over the slabs of treacherous rock, we were terribly annoyed by a large flock of sheep, which would follow us and roll

down stones upon us, in a very dangerous fashion. These animals rarely see any human being, unless it be the shepherd who comes at intervals to tend them, or to give them salt; and whenever a man comes near them, they cluster round him, and besiege him with their importunate caresses. They can pass securely, where the foot of man would slip; and they climbed above our track, disturbing the stones, both great and small, which lay on the rock, wanting but the smallest impetus to set them rolling. They are, thus, often very dangerous companions. We pelted them with fragments of rock, but in vain; we were compelled to charge them five or six times, and drive them far away at the point of the alpenstock. Even then, they clustered together, the moment our backs were turned, and followed us again, though at a more respectful distance. The last time, in pursuing them somewhat farther than usual, I came upon a touching sight. A couple of very young lambs had been deserted by their dam. One had just ceased to breathe, and was still warm. The other was bleating piteously, but in a very exhausted state. Bohren and Balmat both declared there was no chance of the dam's returning. It had left one to die, and the other would soon share the same fate; and Bohren mercifully put it out of its misery, and saved it from starving to death.

We now descended the "mauvais pas," slowly and cautiously, but relieved from the undesirable companionship of the sheep, and presently came in sight of the chalet where old Bohren and his family lived. They were not on the look-out, as they did not expect us for several hours; but some one happened to catch sight of us, and they fired a salute of two guns to announce our safe approach. My wife and her brother were at that moment on the upper glacier, ex-

ploring some of its beautiful deep blue caverns and crevasses. She had had a little chat with the old man as she went to the glacier, and he had pointed to the two cannons, ready loaded, with which he meant to greet us; but she could scarcely believe her ears, and thought it was a mistake, till there was a great bawling from the chalet, and they shouted that they had seen us. She hurried to old Bohren's; and presently afterwards, we again came in sight, and rested for a moment on the little platform of turf near the Enge. We were welcomed by the yells of the whole assembled family of Bohrens, not unworthily responded to by our Bohren and Lauener, who bawled themselves black in the face. We could distinguish the chalet easily enough, but hardly the figures. They were not, as we were, cut out sharply against a face of rock. Balmat, however, put my glass to his eye, and exclaimed: "Voilà Madame, qui agite son mouchoir;" and I fancied I saw a faint gleam of flickering white. Then, he exclaimed again: "Elle se cache derrière la grange; on va tirer encore;" and, as he said it, we saw a puff of white smoke, and, after a considerable interval, a faint report reached our ears. We put ourselves in motion again, and rapidly traversed the Enge, and by a quarter past five arrived at the turf beneath. We stopped for one moment, to quaff our last draught of wine—a welcome refreshment after our energetic descent—and then set off at a run, and raced down the grassy slopes, leaping over several fences. I was a-head; and Lauener and I took a hedge, at the same instant, which divided the meadow from the path towards the Scheideck, when suddenly, and very much to our mutual astonishment, we found ourselves within ten paces of my wife and her brother, who were strolling out to meet us. They could

scarcely conceive, nor could we easily realize, that we had come from the summit in less than six hours, including an hour of rest.

They told me my face was quite livid and purple. I knew it must be very much sunburnt, for all the day long we had none of us dared to wear a veil, as we needed to make full use of our eyes, almost from the first moment we entered upon the upper plateau until we quitted it; I felt, indeed, that my face was scorched and sore, but I had not expected the other effect. It was due, in part, probably to the congestion of the vessels of the skin, which always takes place, more or less, at great elevations—and which is familiar to us in the case of persons who ascend to the summit of Mont Blanc—and partly to the rapid descent, which, as I have elsewhere noticed, is apt to produce temporary deafness from the same cause. The superficial vessels of the drum of the ear, in common with all the finer vessels of the head, get swollen and a little congested, and hearing is impaired. I have known persons whose noses always bled, if they made a long and hurried descent. It was the case on several occasions with my friend H., who has been frequently mentioned as my companion in 1852, and who is one of the best walkers and strongest men I know.

My wife and her brother turned back with us, and retraced their steps to old Bohren's, where we were received with vociferous greetings; and another salute of two guns was fired in honour of our arrival. We offered to drop our Bohren here; but he preferred to go on to Grindelwald, a good hour further, for the sake of figuring in a sort of triumphal procession, which I soon found they were arranging for our entrance into the village. My wife mounted her mule; and we returned slowly by the road. The



men cut across the fields, and must have gained nearly half an hour upon us, but we found them all waiting at a corner of the road, not far from Grindelwald, where they fell into rank, and made the most of our forces. The chamois hunters had left us, when we stopped half an hour at the sleeping-place, to gather up our baggage, else they, no doubt, would have been pressed into the service. Lauener had made us all decorate our hats with bunches of a brilliant red berry we found on the Enge, so that we wore quite a holiday look. It was a quarter past five, when we had met my wife; and we marched into Grindelwald, and were received by the whole assembled village, at half-past six, a full hour and half before the most sanguine had ventured to expect, when we were on the rocks beneath the plateau.

It was curious and amusing to learn the interest our expedition had excited. Telescopes were seen, for some days to come, fixed against the principal windows of both inns, and when any of us walked about the village, we were pointed at, as people who had done something extraordinary. My wife told me that, for two hours at mid-day, after our success was known, the whole village had turned out and occupied itself in gazing intently at the peak, where, of course, nothing could by any possibility be seen, except two little black specks against the snow, invisible to all but the very keenest eyes, unless aided by a glass. The landlord took the earliest opportunity of telegraphing the news to Berne, where the great telescope of the observatory was brought to bear, and from a distance of forty miles they were able to discern our standard and the fir-tree, though what the latter object meant was for some days a puzzle.

Balmat told me that among the guides and people of that kind, the affair had created an extraordinary

sensation, and that he found himself quite a man of note. I had not been surprized to see that both he and Sampson had created in Lauener a strong feeling of respect for their manly and mountaineer-like qualities, and the feeling was mutual. Balmat always called Lauener "le capitaine," and a very hearty feeling of regard evidently existed between them. The next evening, as we were returning from the Wengern Alp, a peasant entered into an animated conversation with our mule-driver, in the course of which I heard myself styled by the countryman "Der Wetterhörner Herr." It was unquestionably a very difficult enterprize, and Balmat and Sampson, who had each been many times to the summit of Mont Blanc declared repeatedly, (and I overheard them saying the same thing in their conversations with one another) that the ascent of Mont Blanc was a "bagatelle," in comparison, as far as difficulty was concerned, though, of course, its superior elevation makes the fatigue much greater. Mont Blanc is 15,732 feet, and the Wetterhorn about 12,500 feet above the level of the sea, so that Mont Blanc is the loftier of the two by nearly the height of Snowdon. The last three thousand feet make a prodigious difference in the fatigue. But there are no difficulties, on the side of Mont Blanc, like those of the Wetterhorn. There are no such bad passages of rock, the Mur de la Côte is far less steep than the last slope of the Wetterhorn, is much sooner passed, and, finally, there is no such obstacle as the overhanging cornice, which, as we saw, had baffled other explorers, when within a dozen feet of the summit. Balmat, who visited me in London, the following winter, told me that when he arrived at Chamouni, whither the fame of his exploit had preceded him, he was instantly sent for to the chief guide's office, where he had to

tell the story over and over again, to fresh troops of eager listeners ; and his journey from Interlaken to Chamouni, along which route he was well known, was like a triumphal progress. At Martigny, he was surrounded, as he was crossing the square, by a host of guides and acquaintances, who beset him with questions innumerable, which he had to answer before he was allowed to proceed to his inn.

The expedition, though full of difficulties, did not appear to me to be dangerous, with really good guides, and abundant precaution. Of course, no one ought to undertake such an enterprize, who was not tolerably familiar with Alpine climbing, or who had not had practice and experience enough to know whether he could safely trust his head and his nerves, in such scenes and situations as I have attempted to describe. The first half hour of the descent would be terrible indeed, to a person who lost, in any degree, his self-possession or self-reliance. In fact, it would be a task full of danger, if such were the case with any one of the party ; and the whole descent would be immensely prolonged. Bohren told me he had accompanied a French gentleman to the plateau, who was very nervous in the descent, and that he had thought they would never reach the bottom of the rocks.

The expense is necessarily considerable ; the guides ask fifty francs apiece for the "course," and it is not too much. The porter receives ten or fifteen francs, as he carries a heavy load, up a difficult and laborious path, and is out two, or perhaps three, days. Three guides are absolutely necessary for the expedition, which is a very laborious one for those upon whom the labour of cutting the steps devolves. All these men have to be fed, for the greatest part of two days ; and the bill for eatables is not a small one. The landlord at Grindel-

wald charged me sixty francs for the provisions, exclusive of wine; an atrocious attempt at imposition, which I am happy to say failed entirely. But still, they must form a considerable item of expenditure; men cannot climb the mountains and eat moderately. The expedition cost me, in the whole, nearly £10. I think it might be done for between £6 and £7; but the fourth guide I was obliged to take made the cost between £2 and £3 more than it need have been. The "Flagge" cost some eight or ten francs; but, in the end, even Balmat and Sampson approved the investment. I never saw such a race of unbelievers as the people at Grindelwald. Our flag was planted at the eastern extremity of a ridge of some length, and of nearly equal height all along. Consequently, from Grindelwald, the western extremity, being nearer, looked a trifle higher, and it was with some difficulty that we could persuade them that the point at which our standard was planted was as high as the rest of the ridge. I am quite sure, if we had not left a very substantial proof of our presence, they never would have believed that we had reached the summit at all.

I found the fatigue not at all more than a good night's rest would dispel. I walked, the next day, to the summit of the Wengern Alp and back, and spent twelve hours, the day after, in an excursion to the Eismeer, the upper part or plateau of the lower glacier of Grindelwald—one of the sublimest scenes the Alps afford—which I explored thoroughly, while my wife rested on the rocks at its side. The third day, we ascended the Faulhorn, and I experienced what Balmat said he had almost always suffered from, three or four days after a great "course"—a raging and insatiable thirst; but this was the only uncomfortable effect left by the greatest

and grandest expedition I had yet made. I am inclined to think that in ordinary years, the difficulty and the fatigue would be less than we found them; but the year 1854 was remarkable, in Switzerland, for the unusually small quantity of snow on the high mountains; and the same cause which rendered Mont Blanc so easy of access, that no less than five or six times the usual number of ascents were made, immensely increased the difficulty of climbing the last slope of the Wetterhorn.

## CHAPTER XV.

### ASCENT OF MONT BLANC.

Whom I now survey  
Not in the fabled landscape of a day,  
Not in the phrensy of a dreamer's eye,  
But soaring snow-clad through thy native sky,  
In the wild pomp of mountain majesty!

BYRON.

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Interesting associations connected with Mont Blanc—Fickle Weather—Balmat a true Prophet—Pierre L'Echelle—The Frozen Vale—The Grands Mulets—Avalanches—Uncomfortable Night—Threatening Weather—Ascent resumed—The Petit Plateau—A Gardener in trouble—The Grand Plateau—The Corridor—The Mur de la Côte—Terrible wind—The Calotte—The Summit—Mist and Wind—Descent—A Roll on the Calotte—Snow Storm on the Grand Plateau—The Grands Mulets again—A serious Disappointment—Magnificence of the Glacier scenery of Mont Blanc—Great steepnees of Mont Blanc—A strange Illusion—Uncertainty of Weather and of the state of the Snow—Fatigue—Mountain sickness—Unreasonable Expense—The Chamouni regulations.

MONT BLANC has always, in my mind, been invested with something of a romantic and mysterious interest. From my childhood, I have read with a curiosity sometimes approaching to awe, the various accounts which different travellers have published, of their attempts to scale the king of the Alps, or lis-

tened with eager interest to the many thrilling incidents which oral tradition relates, and which have not found their way into print. Jacques Balmat sitting with his feet in the snow, wrapped in a goat-skin bag, and braving the horrors of a solitary night on the Grand Plateau, watching the lights of the village disappear one by one, till that in his own cottage—long the only spark alive—was at length extinguished, and then the full sense of his tremendous solitude burst upon his heart—De Saussure struggling, with his long train of followers, up the slippery arête of the Mur de la Côte, battling gallantly with exhaustion and mountain-sickness, turning every step of the ascent to good account in the pursuit of geological and meteorological discovery—the sorrow-retreat of Dr. Hamel's party, after three of their number had been buried in a fathomless abyss—these are amongst the images which, to one familiar with the literature of Mont Blanc, throw around his name something of a grand and solemn interest. Nor, in the present day, have the associations of difficulty and enterprize entirely faded away. Till within a few years past, the attempt to ascend Mont Blanc failed three times out of four, and even now, it rarely happens that some one is not left on the way, overcome by that mysterious affection which has lately received the name of mountain-sickness, and against which no vigour of body, no resolution of mind, is always proof.

In our case, there were not wanting circumstances to bring vividly home to our minds the vastness of Mont Blanc, and the difficulties and chances of failure which beset those who attempt to reach his top. A fortnight before, we had gazed upon his huge form from the summit of the Buet, whence his height and steepness are better realized than from any other

spot I know, and whence it looks like a piece of presumptuous audacity to think of the ascent. A week before, we had resolved, nevertheless, to make the trial, when we had a singular instance of the strange mutability of a mountain climate, and of the unerring instinct with which a careful and acute observer will sometimes predict a change, which, to all ordinary persons, appears utterly improbable. The evening closed upon a scene of such transcendent beauty as we had rarely witnessed, even among the Alps. The sun set without a cloud; not one speck dimmed the dark blue expanse. The great chain of Aiguilles, from the Mer de Glace, to Mont Blanc, stood out clearly, but not too sharply, against a sky of the deepest ultramarine. The stars came out, one by one, gently and gradually, till, at length, towards eight o'clock, they sparkled with the most brilliant lustre. "What a perfect night!" was the remark we heard on every side. Yet with every one around him prophesying fine weather and clear skies, the sagacious Balmat shook his head. The sunset had produced upon him "*un drôle d'effet.*" It was, he declared, very bad. The sunlight had disappeared all at once from the foot of the Dome, without lingering on the summit. Looking towards the Col de Balme, from the Glacier d'Argentière to the opposite side of the valley, there had been for a few moments an arch of whiter light than that around it. He hoped he might be mistaken, but he was sore afraid. We consulted the barometer. It had fallen a little. We went up to his house to look at a hygrometer, in which great faith was put by all the neighbourhood—one in which a gentleman and a lady come out of the house, according to the expectation of wet or dry weather. It had "*bougé un peu,*" his sister said. "*Vers quel côté?*" "Ah! vers le mauvais côté,"

was the reply. He told us he feared about midnight some black clouds would come up from the Col de Vosa, and the wind would rise and blow a gale. Enfin, we should see, but "*le Mont Blanc n'était pas comme les autres courses*," and if the weather were doubtful, it would be folly to undertake such an expedition. Still, the aspect of all nature was so unusually beautiful and tranquil, that, great as was our faith in Balmat, we could not help hoping that his fears were the offspring of his anxiety that we should make a successful ascent, and went to bed about nine, fully expecting to set off early in the morning for the Grands Mulets.

I was excited by the prospect, and could not sleep. I got up at twenty minutes past ten, and went to the window; the heavens were as clear as crystal, the stars bright as diamonds. I lay down. At eleven, I rose again. The night was as tranquil as ever, and the stars shone with undiminished lustre. I lay down again, convinced that Balmat's fears were groundless. At ten minutes to twelve, I rose once more; lo! over the Col de Vosa was one thin black streak of cloud, a little way above the Col. When I next looked out, at half-past one, the sky was completely covered with black clouds, and not a single star could be seen. Presently, I heard a mournful sighing down the chimney; then my outside blinds began to flap backwards and forwards; and in a few minutes, every door and window in the house seemed alive. The trees bent and rustled in the blast, as if it had been a winter storm. About half-past four I woke, to find that the sky was overcast, and the air sultry, and that we had every prospect of a day of clouds and fog, if not of rain.

We waited at Chamouni till the next day, when, finding the wind increasing and a furious storm

raging over the upper part of Mont Blanc, I took counsel with the two friends, R. and W., with whom I was travelling, and we determined to abandon the expedition for the present, and to take our departure at once for the Col de Balme, Orsières and Courmayeur. We crossed the Glacier du Tour on the Tuesday, and returned to Chamouni by the Col du Géant on the Saturday. Our double passage of the great chain within five days was a good preliminary to the ascent, and fully prepared us to appreciate the loftiness of the peak which had towered so far above us when on the summit of the Col du Géant.

The sunset on Sunday, August 30th, was marked by not a few of the unfavourable symptoms which Balmat had observed a week before; and on Monday morning, the weather looked so uncertain, that I had abandoned the idea of starting that day, when Balmat came into my room to tell me that he had put everything in train, and the sooner we were off the better. Poor R. had suffered greatly in crossing the glacier du Tour from an injury to his knee, (an old sprain resuscitated), and it was now so painful that it was a matter of the utmost doubt whether he should venture to go or not; but his true British "pluck" prevailed, and he resolved, to my great delight, not to be left behind. W. also accompanied us, intending, however, to stay at the Grands Mulets and to explore the neighbouring parts of the glacier, while we pressed on to the summit. We got off at a quarter past seven, starting very quietly, accompanied only by Balmat and Cachat, having left one of the most experienced of our guides to see to the packing of the provisions according to the list we had furnished, and to the apportionment of the loads of the different porters. They joined us about an hour below the

Pierre l'Echelle, and a very picturesque procession we made—twenty-four in all. We were obliged, of course, to take the regulation number of guides, eight for the two, with ten porters; besides whom there was a porter whom W. took to accompany him in his explorations at the Grands Mulets, a strapping young fellow of the name of Bellin, a protégé of Balmat's, who begged to be allowed to go with him, and the gardener of the Hotel Royal, who also was desirous of proving his mountain prowess. However, as he took to drinking water copiously before we had been an hour on the journey, it was not difficult to see what would become of *him*.

The weather brightened as the day advanced; and by the time we reached the Pierre l'Echelle (at a quarter past ten) it was as brilliant as we could desire. We halted at the rocks for a second breakfast. Our men had all had a hearty repast, before starting, at the Hotel Royal; but of this not the faintest trace was perceptible. They seemed to have forgotten all about it as completely as if it had never been.

After an hour's rest, very industriously employed by the men, we filed off again, and entered upon that magnificent series of ridges and precipices of ice, intersected by huge and deep crevasses, of which the Glacier des Bossons is here composed. Presently, we came to a long and broad valley in the ice, so deep that while we were defiling along it, we lost sight of all distant prospect, except what lay straight before us. On our left, the ice rose in one long irregular line of threatening precipices to the height of nearly two hundred feet above us; and some of the cliffs overhung so much that we passed quickly beneath them and breathed more freely when we were beyond them. On our right, the formation was still more remarkable; for the ice instead of presenting the ap-

pearance of an unbroken wall, was cleft nearly down to the level of the valley by deep openings which gave us strange wild glimpses, as we passed, of the opposite slopes of the Bréven. Many of the masses which were separated by these curious embrasures rose quite as high as the left-hand boundary of our valley, and assumed the most imposing forms. One pinnacle we called the Aiguille Verte, from its great height and from a certain resemblance to the outline of that great peak. Another looked just like a great eagle sitting in solemn stillness with folded wings; a third presented the appearance of a vast wave, frozen into motionless grandeur just as it curled over and was about to break in foam upon the shore of ice. In short, there was no limit to the variety, the magnificence, or the quaintness, of these remarkable formations; and we all agreed that we had seen few sights among the glaciers so strange and so striking as this "Frozen Vale."

Quitting this curious avenue, we found ourselves among the wild chaos of broken and jumbled ice, which marks the junction of the Glacier des Bossons with that of Taconnay, indicated still more palpably by a black streak of moraine, brought down from the rocks of which the Grands Mulets form the highest points. The passage through this icy labyrinth is short, but it appeared to me quite as difficult as any part of the *séraques* of the Col du Géant. In some places, we were very glad of the ladder we had brought with us from the Pierre l'Echelle, not only to cross wide crevasses, but to ascend or descend where our progress was obstructed by great and sudden differences of level between adjacent parts of the glacier.

The ascent from the junction of these glaciers, to the base of the Grands Mulets is exceedingly

steep. Indeed it is here, for the first time, that one begins to be aware, by experience, how very steep a mountain Mont Blanc is. The upper side of a crevasse is quite as often as not, in this part of the journey, raised several feet above the lower. The ice begins to be covered to some depth with snow, and as the crevasses are wide, and often only to be crossed by a bridge, a good deal of caution is necessary: more, indeed, than I think I had ever seen displayed before; but we had some young hands among our porters, and heavily laden as they were, serious accidents might easily have occurred. There were several places where we found it advisable to trust not merely to our being tied together, (which had been the case since we left the Pierre l'Echelle) but to the protection of a balustrade of rope, held by two men above, and two men below—a precaution which was not relaxed till every man except the last two had passed.

It was just after one o'clock, when we reached the foot of the rock upon which the little hut is built, and after a scramble of two or three minutes, stood upon the top of that noble crag. We had hardly done so, when a tiny puff of white smoke was seen bursting from the garden of the Hotel Royal, and about a quarter of a minute afterwards a faint report struck upon our ears, and made us wonder whether on the morrow we should hear the same report from a little further off.

I had no idea that the view from the Grands Mulets would be so exceedingly grand as it is. Indeed, the afternoon and evening spent there appear to me to be among the chief attractions of the expedition. You have come up a very steep incline, clambering, with uncertain footing, over the heaps of loose débris with which the surface of the crag

is strewn; but on reaching the top, you find yourself at the brink of a precipice hundreds of feet deep, and gaze into the yawning gulf of the Glacier des Bossons, which looks like a great net-work of crevasses set in a slender frame-work of ice. The upper part of the glacier presents a scene of almost unequalled sublimity. On the left you behold the gigantic Monts Maudits, towering into the sky, dwarfing the great Aiguille du Midi into a mere common peak, and perpetually hurling down upon the surface of the glacier fierce volleys of rocks and ice, precipitated from a height greater than that of the top of Snowdon above the level of the sea. On the right, the glacier is guarded by the huge glistening masses of the Dome, and in front enclosed by the vast wall of ice-clad rock, that lifts the Grand Plateau a thousand feet in air, and beyond which rises in solemn majesty, still loftier than all the neighbouring summits, the great white head of Mont Blanc himself. I sat down on the narrow ledge which forms the top of the Grands Mulets to write a note I had occasion to send back to Chamouni; before I had finished twenty lines, the third avalanche which had fallen since I began to write, was thundering from the highest glaciers of the Monts Maudits. It was full two minutes before it had come to an end, and much longer before the repeated echoes had died away.

We had a long afternoon before us, but it proved a busy one. First, there was the hut to sweep out and clean; then we had to unpack and arrange our supplies, comparing each man's load with the memorandum of its contents taken by Jean Carrier at Chamouni. If it is not understood, beforehand, that this course will be followed, it not unfrequently happens that the temptation to leave a part of the burden at some convenient spot very near the beginning of the journey is too strong. We

had not lost a single article. Then we had to give a meal to the porters and to start them off for the return journey. Then we had to see to one of the most important of all precautions for the morrow—that every article of clothing to be worn was thoroughly dried. We changed all our under garments, and the roof of the little cabin was soon covered with flannel shirts, shoes and stockings spread in the sunshine; it was so powerful that we could none of us sit or lie, with any comfort, on the planks which compose the roof. Then we had to get our own dinners, and to clear out and let the guides get theirs, which we found they were likely to take more comfortably by themselves and when we had finished. While they were regaling themselves, we thought we would turn the time to good account, and choosing the softest places we could find on the rocks, we lay down and tried to snatch a little sleep. But sleep is ever a very coquette; when you don't want her, she will often overwhelm you with her caresses, but the more eagerly you woo her, the less will she have to say to you. Besides, were we not lying in the full sunshine of an Alpine sky, Mont Blanc just above us, Chamouni lying at our feet, the Bréven already beneath us, and were we not to-morrow to try to scale that majestic summit? and under such circumstances, who could keep his thoughts from being somewhat too busy for sleep? So we only lay still and indulged in the luxury of silence, and the company of our own meditations, till the stir within the hut told us that the men had finished their dinner, and presently they came out and lay about upon the rocks, and, undisturbed perhaps by the "thick-coming fancies" which crowded upon our brains, they sought repose with better success than we had done.

We found the ever-watchful Balmat still busy

with a thousand little preparations for our comfort. We had thought that a bed to lie upon would be well worth ten francs, and had accordingly hired extra porters and brought up a couple of little mattresses from the hotel, and with knapsacks for pillows, it was surprising what comfortable couches he had managed to make. The active Bellin was despatched to pick his way down the steep crags overhanging the Glacier des Bossons, to a spot where the melted snow was known by experience to trickle down in a little stream; and the bottles which had been emptied of their red wine for dinner, were now re-filled with water, sugar, citric acid and lemon essence, and a stock of excellent lemonade brewed for supper and for to-morrow's dinner. The bones we had stripped were wrapped neatly up and put by, that W. and his attendant might have some soup ready for us on our return. Then a fire had to be lighted, and water to be boiled to make our tea, and by the time this meal was prepared, though no time had been lost, the sun was getting very low.

We all turned out to watch the sunset, which was a matter of great anxiety to us, for dense clouds had been gathering in the west, and the temperature was higher than we could have wished. Again the sunlight vanished ominously from the Dome and the base of the Calotte, without shedding its last gleams upon the summit, and the evening meal was rather a dull one, for we were all uneasy about the weather. Our plan was to be ready to start at eleven, to march all night by the aid of lanterns, and to reach the Corridor, if possible, soon after daybreak, and the summit before the sun was high; for we had been led by the last party to expect that we should find the snow very deep and fatiguing—a state of things which would, of course, get worse as the day wore

on. Soon after eight, therefore, we all lay down, it being arranged that Balmat should call us at a quarter past ten. Before retiring, however, I stepped out, and fixing my alpenstock in a cleft of the rock at the further end of the ridge, hung a self-registering thermometer from the top, that it might be as little affected as possible by the radiation from the Grands Mulets. I was sorry to find it very warm. I might have sat out of doors for an hour without feeling unpleasantly cool, and what was still worse, an occasional flash of lightning was darting out of the black clouds in the west. I could not help fearing that we were to undergo a great disappointment.

For the next two hours, however, we lay as still as mice, every one supposing his neighbour to be asleep; but it was a striking proof how uncomfortable every one was, that when Balmat announced that a quarter past ten was come, the whole party sprang to their feet as if they had been one man. In less than two seconds, I do not believe a single prostrate figure was to be found in our cabin. A fire had been kept up in the stove, and, according to the universal principles of the guides in such matters, every aperture by which a breath of fresh air could have found its way in was carefully "*bouchée*," so that with fourteen persons crammed into a chamber about fifteen feet by seven, it is no wonder that we were glad of any change.

The weather had become no worse since we lay down, and though lightning was now to be seen over the Bréven, it was still quite clear in the direction of Mont Blanc, and we thought we might venture to proceed. A cup of coffee a-piece was served round, and the most formidable preparations made against the cold. First, our feet were well greased, then wrapped in rabbit's fur, then encased in two pairs of socks, all

well dried. I added a second pair of trousers for myself, and doubled my shirt. Then we had our legs further protected by an immense pair of coarse woollen gaiters of great thickness and warmth, and finally, a pair of fingerless woollen gloves lined with fur was given to each of us, to put in our pockets and wear as occasion might arise. This complicated toilette was a long affair, and when it was completed and nothing remained but to fasten ourselves to the ropes, Balmat stepped out, and returned with the cheering intelligence that it had become as dark as pitch over the summit, that the lightning was very frequent over the Bréven, and that, at present, it would be folly to go on. We all turned out, and unwilling as we were to admit the necessity, saw at a glance that Balmat was right. The frequent flashes of lightning in the north, served but to set off the blackness of the sombre cloud which hung like a funeral pall over the Grand Plateau; the thermometer was still up to 50° —a great deal too high for midnight at the Grands Mulets. The only person to whom the news was welcome was the gardener, who looked by this time the picture of misery and despair, and wished himself safely back among his cabbages and endives. W. had hitherto shared the bare floor with the guides, and had well earned a right to be sleepy; accordingly, the moment R. had risen, he had flung himself upon the vacant mattress, where he now lay coiled in a graceful figure of S., most happily unconscious whether we were at the top of Mont Blanc or at the bottom of a crevasse. Much later in the night he roused himself, and asked with great surprize if we were not gone, but was fast asleep again long before he could get an answer. There was nothing for us to do but to emulate his good

example, and we all lay down again, booted and spurred as we were, and tried to get some little rest.

Balmat was out half a dozen times in the course of the night, but always came back in gloomy silence, or only to exchange a desponding whisper with Cachat, till the last time, when, to our great joy, he exclaimed, "Eh bien! allons! faisons notre possible!" In ten minutes, every preparation was made, and exactly at ten minutes past four, without so much as disturbing W., we filed off in two parties of six each, and descending a few paces to the Glacier de Taconnay, quitted the last rock we were to touch until we should have arrived at the Grands Mulets again in our descending course. I looked at the thermometer just before starting, and found it had sunk to 40°—still much higher than we liked to see it.

We walked for about half an hour by the aid of lanterns, which we deposited in the snow as soon as it became light enough to enable us to dispense with them. We had then advanced close to the Dome, beneath whose icy precipices we had to defile until we arrived at the Grand Plateau. From Chamouni, this part of the ascent appears gentle enough, but in reality a great deal of it is hand over hand work. Crevasses have to be passed, of enormous size and depth, and many a détour must be made to find a bridge by which they can be crossed. At length the top of a steep bank is reached, and you have actually to descend a little way, to reach the Petit Plateau. There is something very solemn in the change of scene. A moment ago, you were within sight, almost within sound, of Chamouni, and on looking back a rich and cultivated valley lay at your feet. The brawling of the mountain torrents which pour from

the heights on either side, was distinctly heard, and though above it, you seemed still connected with the living world. You are now in a secluded hollow at the base of the Dome. It is a scene of stern and frowning desolation. Every sight and sound of life or motion, is shut out by the ridge you have crossed, and you feel as if you had abandoned everything that could form a link between you and the rest of mankind. You have now to cross a wide plain of perfectly unbroken snow, strewn all over with huge blocks of ice, the débris of a most threatening glacier on your right. Falling from a great height, they have rolled far across the plateau, and now lie scattered broadcast in every direction. There was no part of the ascent that struck us as more curious and wonderful than the Petit Plateau, with the terrific *séraques* which overhang it. Let the traveller who has crossed the *Glacier des Bossons*, near to the valley of Chamouni, and looked with astonishment and awe at the great pyramids of ice which form the peculiar characteristic of the scene, fancy them magnified tenfold, and then raised a thousand feet above his head, and he will have some faint notion of the *séraques* of the Petit Plateau. He will be able to imagine how we saw the blue sky through the gaps which separated the different masses of the broken glacier. But he will scarcely be able to realize how we saw towering overhead, not merely pyramids, but long walls, of ice, actually dipping forward from their bases, upheld by no visible support, and displaying to us the beds of snow of no less than fifteen successive years, lying in distinct strata of varying hues and shades, as regular as if they had been courses of masonry—nor how, as we threaded our devious way amongst the débris which obstructed our path, we found many of the largest blocks similarly marked

with the stratified deposits of several years, the layers pointing now not horizontally, as in the parent masses, but upwards or downwards, in any plane in which chance might have thrown them.

The ascent from the Petit to the Grand Plateau is effected by climbing a succession of banks of snow separated from one another by profound crevasses of great length and width. The last crevasse encountered just before reaching the Grand Plateau is of unusual magnitude, and is one of the recognized difficulties of the expedition. It is necessary sometimes to make a very wide détour, approaching close under the Dome to pass it; and sometimes even to bring two ladders as far as this spot. We found without much trouble a part where we could leap across, one after the other. But some gentlemen who ascended on the Saturday following, found it very much widened since we had been there, and experienced considerable difficulty in effecting a passage. The banks of snow which thus lead to the Grand Plateau are steeper and vaster, and the scenery is altogether on a more colossal scale than anything we had yet witnessed. Some of the snow slopes can hardly be less than 400 hundred feet from the crevasse at the bottom to that at the top. On one of them, our friend the gardener at length fairly gave out. His nose was bleeding, he was sick, his heart beat violently, his limbs trembled and refused his weight, and he looked nearly as pale as the snow. We knew very well, that as soon as he began to descend, he would be all right again, this being one of the most curious features of the mountain-sickness; so we left him—as we had expected to do—to find his way back by the well-marked track we had made, giving him an emphatic caution not to eat the snow,

which he was disposed to consume in large quantities, and a message to our friends at the Grands Mulets to be sure not to forget the soup.

The snow was in a far better state than we had been led to expect, and by pursuing our favourite plan of marching steadily on, not hurrying, but not stopping to rest, we had made such good progress than in three hours from the time of our leaving the Grands Mulets we were upon the Grand Plateau. We now therefore, called a short halt, and refreshed ourselves with a little chicken, bread and wine; but we could not stay long, for we had no reason now to complain of the temperature as being too high. We were yet in shadow and a cold north-west wind swept piercingly over the snows of the Dome and chilled us to the very bones. A few mists hung over the valley of Chamouni, and beyond the Bréven the distant prospect was anything but clear; still, Mont Blanc was unclouded, and the sky was clear and blue, and if the wind, which was blowing up little clouds of snow from the edges of the Calotte and the top of the Corridor, were not too strong, we had now little doubt that we should gain the summit, though we felt considerable doubts whether we should see much when we got there.

We made a slight deviation to the left in crossing the Grand Plateau, in order to approach as near as possible to a great crevasse which is always found about the same spot, and into which three guides were swept by an avalanche on the calamitous expedition of Dr. Hamel in 1821. It was an awful gulf, and one could not help thinking, that although the danger of dislodging the snow and *creating* avalanches was much diminished by ascending the Corridor, instead of pushing straight up towards the Calotte from the Grand Plateau, still, if an avalanche

were to fall, there was no great reason why it should not reach the crevasse now as much as it did five and thirty years ago. The avalanche, however, that overwhelmed Dr. Hamel's party, was of snow, not of ice, and these rarely take place in the autumn, so that practically, I apprehend the risk is almost infinitesimal. Great falls of ice, however, are common enough, from above some precipitous rocks on the further side of the Grand Plateau, and between which and the base of the *Monts Maudits* the ascent of the Corridor begins. This part of the Plateau was thickly dotted with fragments of ice recently fallen, but of inconsiderable size, and far less suggestive of danger than the great blocks which are scattered over the *Petit Plateau*.

Some of the finest crevasses we saw during the whole ascent occurred at the commencement of the Corridor, and caused us many a *détour*. Great difficulties are often encountered here; sometimes they have even been found insuperable, and it has been necessary to take to the old and more dangerous route, at least for a part of the way. We, however, were more fortunate, and soon gained the slopes beyond the crevasses where we found ourselves in a valley, more than half a mile wide, enclosed between the *Monts Maudits* on the left and the *Rochers Rouges* and *Mont Blanc* on the right. There is no other part of the ascent which gives one so good an idea of the scale upon which *Mont Blanc* is built. The eye ranges over an expanse of snow so vast and so monotonous that the mind is lost in the contemplation, and receives no distinct or adequate idea of the immensity of the prospect. It is only after you have been plodding on, ascending sharply at every step, for more than half an hour and find no sensible alteration in the features of the scene—behold the

same interminable waste of snow before you, the same crags apparently as high above you on either side, the Mur de la Côte apparently as distant as ever, that you become aware of the real magnitude of the greatest of the Alps.

The Corridor is not merely long, steep and fatiguing, but, for some reason or other, which I have never heard satisfactorily explained, seems to have a specific effect in provoking the attacks of mountain illness. I have been assured over and over again by experienced guides, that it seldom happens that some one or other of the party is not taken ill before arriving at the top of the Corridor. The commonest form of the attack is sickness, and I watched with some anxiety to see if myself or any of our party were likely to be left behind. However, the emetic of which we had been forewarned was administered in vain, and about half-past eight we reached the foot of the Mur de la Côte, safe, sound, and in good condition. We now for the first time looked over the Italian side, and the first glance showed us that we could hardly expect much of a view. The clouds hung in dense masses upon the Allée Blanche and over the mountains of Piedmont, and only the loftier summits rose above them. It was curious to look down on the Col du Géant and observe the very spot where we had breakfasted but three days before, and whence we had had a perfect view of the scene which we now beheld enveloped in mist. We were not yet at the summit, however, the sky was perfectly clear above the clouds, and we could not help hoping that as the sun got higher, the prospect might become clearer.

We sat down upon the snow for a few moments at the top of the Corridor, but we could not stay long. The north wind was blowing terribly, and we were

pelted with a driving storm of powdered snow. Thickly clad as I was, I should have been glad of more clothing, and it required all my efforts to keep my feet from freezing. We therefore addressed ourselves at once to the Mur, and turned to face the blast in all its fury.

The Mur de la Côte is unlike any description or representation of it I have ever read or seen. On the one hand the pictures in which men appear creeping across the face of a bank of ice, resting on a convex slope of nearly 60° , with a terrible precipice beneath their feet, reminding you of flies clinging to a wall, appear to me to be simple efforts of the imagination. I, at all events, saw nothing to justify them. On the other hand, some descriptions which have lately been given, in which all possibility of risk or difficulty is ignored, are, I think, unfair generalizations from a very fortunate accident. Standing at the summit of the Corridor, you perceive that the mass of ice which surmounts the Mur, and is called the Côte, has two faces, nearly at right angles to one another, one towards the Italian side, the other above the Corridor. The face which overhangs the Glacier de Brenva and the Allée Blanche is—at least such is my recollection—slightly concave, so that it increases in steepness as you ascend. On the side above the Corridor, the outline is convex, the inclination of the upper part being gentler than that of the lower. Each face is steep, but that which looks to the south is the steeper, and consequently affords the shorter line of ascent. The state of the Mur de la Côte varies extremely, even from day to day. Sometimes the snow has been entirely swept away by the wind, or its surface has been melted by the noonday sun, and frozen at night. In either case, the Mur presents a most formidable aspect. It is a sheet of hard

glassy ice, perfectly smooth and unbroken, on which, of course, nothing would arrest the downward progress of the traveller, should he slip. It then becomes necessary to cut steps from the bottom to the top, and as the Mur is, perhaps, four or five hundred feet high, and the steps must be cut deeply for the return journey, the labour is very great indeed. The rarity of the air is now sensibly felt, few men can stand the same amount of exertion as they could below, and the guides want frequent relief. If a high wind is sweeping across the naked face of the glacier, the cold may be terrible. When this is the condition of the Mur, the practice is to take the shortest cut to the top, which is, of course, the steepest, and the track overhangs the Italian side. Here a bad slip would almost undoubtedly be fatal, for the unhappy person to whom it occurred would glide with fearful and ever increasing velocity down to the glacier of Brenva, a vast distance below, and would in all probability be dashed to pieces long before he reached it. If, on the other hand, the eastern, instead of the southern slope, were chosen for the ascent, the distance and the labour would be increased—very important considerations at that height; but, though a fall would be very serious, I doubt much whether it would be fatal, because the Corridor is much nearer, is always covered with soft snow, and, contrary to what analogy would lead one to expect, is not separated from the Mur by a bergschrund. There are some small rocks which crop out from the ice, on this side, presenting nearly perpendicular faces, ten or fifteen feet high, towards the Corridor; and if a person slipping along the hard ice were to shoot over one of these, he would very likely be killed; but the danger is nothing to what it is on the eastern side.

On the other hand, it may happen that the Mur

de la Côte is covered to the depth of a foot or two, or even more, with snow, which may afford a perfectly safe and easy footing, without the necessity of step-cutting. Under such circumstances, instead of being driven to the steepest line of ascent, you can turn northwards, and zig-zag up the face exposed to the Corridor, and a slip, if it did its worst, could only give you a glissade in the snow for some hundreds of feet, without a chance of injury, and with the certainty of being brought to a stop by the gentler slopes of the Corridor.

A party of travellers, who had made the ascent on the preceding Friday, had found the Mur one sheet of glassy ice. We, making the same ascent on the Tuesday, were not called upon to cut a single step, but wound our way in long zig-zags up the eastern face of the Côte, treading securely in some eighteen inches of snow. Instead, therefore, of our having a couple of hours of fatiguing and anxious work, the ascent of the Mur occupied only about a quarter of an hour, and by twenty minutes to nine, we reached what from below had appeared a dome, and were informed that we had gained the Côte. We had expected here to find ourselves upon a kind of summit, close to the foot of the Calotte, or separated from it only by a trifling depression, but we were surprised to see that the only variation was in the angle of ascent, and that a broad glacis—if I may borrow a term from fortification—of gentle and regular inclination lay between us and the Calotte. Nothing struck us more forcibly throughout the whole ascent, than the immense size of every feature of this upper region, compared with our previous conceptions. The higher we got, the greater seemed the distances still to be traversed, and the heights still to be gained. From every point of view that I remember, the Côte looks

close to the Calotte, yet it took us ten minutes to cross the Plateau—as it is euphemistically termed—between the Calotte and the Côte.

It was very curious to see the different peaks to which we had so long looked up, at length sinking below us. The Aiguille du Midi was the first to yield. I was astonished to see how early in the day we began to look down upon this peak. It did not appear to me to be much higher than the Grand Plateau, but we had been so long accustomed to the imposing aspect it bears from the valley of Chamonix, that we had hardly realized its true relation to the system of Mont Blanc. The Aiguille de Gouté, also was one of our earlier conquests, but the Mont Blanc de Tacul appeared of enormous height, as we drew close beneath its base, at the foot of the Corridor. The Dome de Gouté, though more distant, still seemed a most pertinacious foe, and during the earlier part of the ascent of the Corridor, I thought we made no visible way against him. Now, however, we found our perseverance rewarded. The Mont Blanc de Tacul and the Dome were fairly beneath us, and the Monts Maudits, the loftiest of the tributaries of Mont Blanc, either were already vanquished, or could not maintain the struggle many minutes longer. The Grandes Jorasses had sunk into a group of secondary elevation, and the only object in the scene which seemed to dispute the pre-eminence of Mont Blanc, was the Aiguille Verte, which still looked of amazing height.

And now we were upon the Calotte itself, which grew more difficult and laborious at every step, and appeared to me hardly less steep than the Mur de la Côte, while the increasing height told with continually increasing force upon the lungs and upon the heart. My companion R., suffered little, beyond a

greatly increased sense of fatigue, and I doubt if Balmat or Cachat found any difference between the air of the Calotte and that of Chamouni. I was supposed, for many years, to have a strong tendency to heart-disease, and when a boy, was interdicted cricket and bathing, so that it was not unnatural that I should be a good deal troubled on Mont Blanc with palpitation; but except for this I was perfectly well. Like R., however, I found the labour of walking infinitely greater than it was below, and I suppose this was the general experience, for at every hundred paces or so, a momentary halt was come to, by common but tacit consent; no one seemed to need reminding of the necessity, though all our men were strong and active fellows—so much so, that when ascending from the Petit to the Grand Plateau, after frequent requests to them, on my part, to remember to go more gently, the exclamation was wrung from me: “Oh! si je n’avais qu’un guide faible pour le faire aller le premier.” A halt of a few seconds, however, was always sufficient, and we were glad not to stay longer than was necessary, for the cold was intense. The dry snow was blown in clouds upon us, and penetrated every seam, while the wind entered at the back and came out at the chest, as if we were made of gauze. I had been obliged, for the last hour, to kick the toe of one foot against the heel of the other at every step, to keep them from freezing. In spite of the rabbits’ fur, the two pair of socks, the stout boots, and the woollen gaiters, my feet were only just sensible. My boots were frozen as hard as solid iron. I trod, and even stamped with one upon the other, without producing any more impression than if they had been a pair of sabots.

At length, however, after an hour of the most laborious climbing I have ever known, we found

that there was no more snow above us, and the next step placed us on the summit of the loftiest of the Alps—a long and nearly level ridge, presenting, towards the valley of Chamouni, a steep face, surmounted by an overhanging cornice of ice and frozen snow, and on the Italian side, falling off in a kind of half-dome, not above a hundred or a hundred and fifty feet high, at the foot of which was a plateau of snow, perhaps a quarter of a mile across, terminated, so far as we could judge, by the abrupt and savage precipices of the Allée Blanche. We had approached the ridge endways, so that it was not till within a few seconds of our reaching the top, that we were aware it was near, when the truth came upon us as a most agreeable surprize.

We stayed a few moments on the actual crest, and saw, but could not hear, that a gun was fired from the Hotel Royal. The wind, however, was too keen for us to stay long exposed to its fury. So, after taking a rapid glance at the view to the north, we descended a few paces on the south side, where burying our feet in the snow, we sat down in the full heat of the sun, and found it very comfortable. As far as the distant view was concerned, however, our ascent was not successful. The prospect was clear over the area of a circle, of which Mont Blanc was the centre, and the radius was perhaps ten or fifteen miles; but beyond that distance we beheld, in every direction, more clouds than it had ever before fallen to my lot to see at once. They formed a solid rampart all around, built of dense masses piled the one upon the other, from the earth on which they rested, to the sky in which they merged. The Aiguille Verte was clear enough, but the Aiguille d'Argentière was without the magic circle. Turning to the Grandes Jorasses, we beheld a perfect forest

of black and jagged peaks, piercing the general bed of snow and forming a system of whose magnitude and extent it is impossible, from any other point, except perhaps from the Aiguille Verte, (if it be accessible), to have the least conception. Next in order came the Val Ferret, the Cramont, the Chétif, and the group which rises to the south of the Allée Blanche. But we were disappointed to get no glimpse into that magnificent valley. We had fully expected to find the southern precipices of Mont Blanc close beneath the summit, instead of which, as I have said, a broad plateau lay before us, effectually concealing the depths of the southern valley. I the more regretted the presence of such dense masses of cloud over the Italian side, because the grand view we had had on the previous Saturday, from the Col du Géant, had led me to expect that the more extended prospect from Mont Blanc would be of the most sublime and interesting character. As it was, three peaks alone towered above the sea of cloud, Monte Rosa, the Weisshorn and the Matterhorn. Towards the west and north, the view was somewhat clearer; but we could see neither the glaciers of Dauphiné, nor the Lake of Geneva, nor the Buet, nor the distant Jura, nor the plain of Switzerland, while the great group of the Bernese Oberland and the far mountains of the Tyrol were hidden in impenetrable mist. It would be idle to deny that this state of the weather was a great disappointment to us: still, we saw enough to satisfy us that the view from Mont Blanc is well worth the labour of the ascent. The kind of bird's-eye view obtained from such a height is not, it is true, so picturesque as those to be had from lesser elevations; but it is extremely curious and instructive, and gives one an idea of the grouping of the great features of the

country, the mountain ranges, the valleys, the peaks and the glaciers, such as nothing else can supply. In five minutes, you get a better notion of the true extent and distribution of the glacier systems, of the way they meander among the crags and precipices, of the extent of the *névé* as compared with the lower and more icy portions of the glacier world, of the actual character of the *Aiguilles*, of the relative heights of the various chains, and of the various parts of the same chain, than you could in a month's study from below. There is something, too, very pleasing to the imagination in beholding so vast an extent of territory at once, and looking upon familiar objects from so strange and novel a point of view.

However humiliating the confession, truth compels me to own that the first question we asked—R. and I almost at the same moment—after we had thawed a little in the genial heat of the sun, was, "How many chickens?" Great was our disappointment to learn that, trusting to the want of appetite commonly experienced at the summit, our men had brought but one—a sorry meal for eleven men. We had a bottle of champagne, but the excessive effervescence made it difficult and uncomfortable to drink, and it proved quite enough for the party. The cork certainly flew to a great height when the string was cut, but I did not notice that the report was less loud than usual, though I did observe that our voices sounded low and subdued.

When ascending the Corridor, Balmat had expressed some anxiety about the wind, saying, as he looked at the little wreaths of snow blown about by the wind, that if it became much higher, we might be "*emportés comme des mouches*." While we were standing about at the summit, I recurred to this subject, and asked him if he had been speaking

figuratively or if he thought such an event a possible contingency. He replied by pointing out to me some large blocks of ice which lay about half way across the plateau to the south of us, and remarked that they must have come from the ridge, and that the wind must have carried them to the place where we saw them, for the declivity was too trifling for them to have rolled; and if the wind could tear off these blocks and carry them some hundreds of yards, it would be no great feat for it to carry us away. I could not but acknowledge the justice of the inference, and wonder at the energy with which the operations of nature and the action of wind, frost, and lightning, are carried on at these vast heights.

I went with Balmat to the end of the ridge towards the Bosse du Dromadaire and the Dome de Gouté. The state of the ice varies much, doubtless, from time to time, but we both thought that as far as we could see, the descent to the Grand Plateau might be accomplished along the curtain which connects the summit with the Dome. There was one spot behind the Bosse which we could not see from where we stood, and for which, of course, we could not answer. We were loth, however, to expose ourselves, in that high wind and with the chance of bad weather, to the risk of having to return to the summit, and therefore determined not to make the experiment; but I have a strong opinion that in favourable weather, and with the snow in a good state, the passage would be accomplished with no very great difficulty; while the saving of time and labour involved in the long détour by the Mur de la Côte, the Corridor and the Grand Plateau would be very great.

It was ten minutes to ten when we reached the

summit; after half an hour most pleasantly spent, we began to think of returning, for heavy clouds were gathering to windward and resting on the *Chaine des Fys* above the *Col d'Anterne*. We therefore collected our few traps, and taking to the ropes again,* quitted the friendly shelter of the ridge, to encounter once more the keen north wind. There lay *Chamouni* nestled at our feet, seen in miniature, as if in the wrong end of a telescope, but so distinct and clear, each familiar spot so easily recognizable, that it seemed difficult to think that it was twelve thousand feet below us, and that we had seven or eight hours of continuous and rapid descent to make before we could reach it.

Descending was very different from ascending, but not so easy as I should have expected. Your foot comes down with a plunge and sinks deeply into the loose snow, whence it requires some exertion to pull it out again. Nor is the *Calotte* smooth as I had always fancied it from below. There is a curious intermixture of ice and dry powdery snow. The ice seems not unfrequently to present a sort of honey-combed structure, caused I suppose by the irregular and unequal infiltration of the surface melting, which takes place freely during summer, even at this height when the sun is unclouded and the air tranquil. When a strong wind blows, the loose snow is swept from the surface, but the slenderest framework of rigid material is sufficient to accumulate the light drift, and thus to cause hollows, which receive and partially retain the drainings, and at the bottom of

* This was not an unnecessary precaution. *Crevasses* are sometimes found on the *Calotte*, and there is a well-authenticated case of a guide, who fell through the coating of snow within a hundred yards of the summit into a *crevasse* thirty feet deep, whence he was extricated, with some difficulty, by his companions.

which a hard cake of ice is formed at night. Then fresh snow falls, or the light outwork of reticulated ice which protected them is blown or melted away and the drift fills up the cavity, so that it is a matter of chance whether you plunge six inches or a couple of feet deep in the snow. On the steepest part of the Calotte, I fancied a glissade might be practicable, but I had not gone twenty yards before I was brought to a stop by a bit of hard ice beneath the surface, which tripped me up. To use my alpenstock more freely, I had taken off my thick gloves. As I rolled over, the warmth of my hands moistened the snow, which, however, froze again the instant it was exposed to the wind. I felt the caloric going out of the backs of my hands with a rush, producing just the same sensation as if I had been scorched, and though I was up again in less time than it has taken me to mention the incident, I rose with my hands benumbed and powerless; and was very glad to get them safe into the gloves again.

The favourable state of the snow was quite as great a relief to us, in descending, as in ascending, the Mur de la Côte. Indeed, the descent of an arête like this, by steps cut in the ice, is always one of the most unpleasant operations in Alpine travelling. On the Mur, it often happens that a high wind will obliterate the steps almost as soon as they are cut, and then the descent is a formidable task, involving great labour and occupying much time, during which, all of the party, except those actually at work hacking away the ice, are exposed to a keen wind, without the counteracting influence of exercise. The steepness of the Mur, however, is much exaggerated in the common pictures. I had no clinometer, nor did I attempt to measure the inclination, but I doubt very much if it exceeds 40° in any part. The descent

from the top of the Findelen glacier, on what I have elsewhere spoken of as the Col Imseng, but what is now generally called the Adler pass, and the first part of the descent of the Wetterhorn, are infinitely more difficult than the Mur de la Côte; and when I made the Adler passage, we were exposed to a wind as furious as most of those which sweep the Mur.

The descent of the Corridor was very fatiguing, especially to R., whose courage had carried him to the top, in spite of his knee, but who began now to feel it very much, and was sorely tried by the uncertainty of the footing. Sometimes we found bottom at six inches, but more often we plunged into the snow nearly up to our thighs. Nor does the alpenstock afford any help when the snow is loose and soft. You have to drive it in perhaps eighteen inches, before it meets with anything to stop it. If you then throw a portion of your weight upon it, it slips in, with a jerk, a foot deeper, and throws you off your balance; and the labour of drawing it out again is considerable.

We were very fortunate in reaching the summit when we did. Had the day been an hour younger, I doubt if it would have been possible to stand the cold. Had we been half-an-hour later, we should have had a snow-storm, for, by the time we reached the middle of the Corridor, a dark cloud rested on Mont Blanc, and it was snowing on the Grand Plateau. Presently afterwards, we came within the shadow of the cloud, and felt, what I have noticed before, how entirely, in these elevated regions, any warmth experienced is due to the direct action of the sun.

When we reached the Grand Plateau, we found our footsteps half filled up and the snow still falling. A heavy mist hung over the Glacier des Bossons,

and the Petit Plateau. Chamouni, the Grands Mulets, and the Dome de Gouté were alike invisible, and we had the opportunity of judging a little of the bewildering effects of a snow-storm. The bad weather did not last long, however; before we had crossed the Plateau, the summit was again visible, the Dome stood out against a perfectly unclouded sky, and before the Petit Plateau was reached, not a mist remained in sight. At twenty minutes to twelve, we halted a few moments on the scene of our morning repast, where we found a knapsack we had left there, and were soon busy with its contents.

Nothing could be more agreeable than the descent from the Grand to the Petit Plateau. The scenery is of the grandest order—indeed, I think this the finest portion of the whole expedition; the rapid inclination enabled us to make great progress, only arrested by the impossibility of satiating the eye and the mind with looking down into the vast and wonderful crevasses which we crossed, or amongst which we picked a tortuous way, while the increased compactness and elasticity of the snow relieved us from the disagreeable jostling or shaking, of which the descent of the Calotte and the Corridor had given us so ample an allowance. Our progress was quickened and diversified by many a glissade, the most delightful and exhilarating motion in the world. Sometimes we slid in the orthodox fashion, standing up, and leaning back on the alpenstock; but I must confess that to me, the more ignominious plan of sitting down on the soft snow, three or four in a row, each man laying hold of the legs of the man behind him is still more attractive. The amazing speed with which you go, the smoothness and tranquillity of the motion, the utter absence of all trouble or exertion of your own, and the gentleness with which you come to

a stop at the bottom of the slope, combine to make it the very perfection of locomotion.

The Petit Plateau was soon passed. No fresh avalanche had fallen since the morning, but the great *séraques* looked more threatening than ever, and it would not have surprized us, at any moment, to see one of the huge walls of ice give way and fall in a thousand shattered fragments across our path. The scene is one of great, but awful, beauty, and few travellers would be tempted to remain longer than necessary, within the reach of so terrible a power.

Jamjam lapsura cadentique
Imminet adsimilis.

A slight ascent for a few hundred feet from the Petit Plateau brought us to a point of great interest; for here we quitted the secluded hollow beneath the Dome, where we had seemed effectually cut off from all the world without, and came once more in sight of the valley of Chamouni and the habitations of mankind. As there is something solemn and even melancholy in passing into the death-like stillness and seclusion of the Petit Plateau, so there is something joyous in re-entering the region of life and activity. The noisy torrents are brawling loudly under the influence of the mid-day sun, and Chamouni, though still distant, looks twice the size it was when you last saw it from the edge of the Grand Plateau.

The great snow-slopes which lie beneath us are quickly traversed. Here and there, the great crevasses render some caution still advisable; but we now may take glissades by the furlong together, and the Grands Mulets are at hand and suggest unromantic thoughts of indemnity after our long and hungry walk. The ropes are once more unfastened, and we

straggle in, one by one, in irregular procession, as taste and fancy dictate our course, or regulate our pace. It is just one o'clock—two hours and forty minutes since we left the summit, which now looks so very far above us—when R. and I scramble up the rocks and are met with the heartiest greeting, and received with the most assiduous kindness by the best of good fellows, W., whose company we had wished for many a time since we saw him last.

Alas! and alack! though, we are doomed to pay the penalty of having made a very successful ascent and a quick descent. That confounded gardener, wishing to gloze over his own failure, had informed W. that the difficulties were terrible, and that it was impossible we could be back before four o'clock. W. had been out on an expedition of his own, and had seen nothing of us till about ten minutes before we arrived, and could hardly believe the evidence of his senses when he beheld us appear on the snow-slopes just above the Grands Mulets. He had supposed we could not be nearer than the Mur de la Côte or the Corridor, and had only just set the soup on the fire. I confess that soup had formed a conspicuous object in my thoughts for some little time past. The shaking descent, and the rapid changes of climate, had made me feel rather uncomfortable latterly, and a bowl of soup, I thought, would just set me right again. However, there was no help for it; we could only thank W., who never forgot to do either of us a kindness, for his excellent intentions; and though I did not find my appetite till I reached Chamouni, half an hour's rest made me myself again. R.'s knee was very painful, but his spirit was unimpaired, and he thought it would serve him till the evening, after which he could give it the rest it had earned.

Before we left the Grands Mulets, our guides, with a care which others would do well to imitate, swept out the hut, and arranged everything as neatly and nicely as if they were going to return thither on the morrow. We then got in harness again, and at two o'clock filed off down the Glacier de Tacconay. The change since yesterday was marvellous; crevasses had widened, snow-bridges had melted, pinnacles had fallen, and the whole aspect of the glacier was greatly altered. Some of the passages were very bad, and it took us quite as long to descend to the junction with the Glacier des Bossons, as it had done yesterday to ascend. It was not without a feeling of relief that we found ourselves again at the entrance of the "Frozen Vale." This also was strangely changed. Both yesterday and to-day, the power of the sun had been very great, and whether it was really so or only that we had been amongst scenes of a vaster kind, we fancied that the chain of ice-cliffs was sensibly lower than it had been the day before, while there could be no mistake that many of the most curious peaks had lost their characteristic forms. The *Aiguille Verte* was dwarfed and rounded, the eagle's head was gone, the wave had toppled over, and the frozen crest was shattered into a hundred fragments, which lay scattered upon the glacier, and obstructed our passage.

The rest of the descent was marked by no incident worthy of notice. The trees and herbage seemed greener than ever, and were more than ever grateful to the sight and smell, and I thought the valley of Chamouni never looked more rich, and the village never showed to greater advantage than when, just as the clock struck six, we entered the little square by the bridge, and found ourselves at the door of the most comfortable of hotels, shaking hands with the

most hospitable and true-hearted of landlords and his excellent wife.

I hope I may not be thought presumptuous in having ventured to devote a chapter to Mont Blanc. The best excuse I can offer is, that familiar though I was with the literature of the subject, the scenery seemed to me not only grander than my conceptions, but in many respects different from my anticipations. I have endeavoured to record what struck my own mind most as novel and unexpected, hoping that what I myself found so full of wonder and delight, may be not without interest to the sympathizing audience to whom the story of Alpine wanderings is addressed. No man who is indifferent to the subject, will care to take up such a book as this. Those who, like myself, are accustomed to seek among the mountains some of the best and purest pleasures which life can give, look kindly, I believe, even upon a twice-told tale of mountain rambling, if it be honestly and truthfully recorded. Let me add, that I was not singular in finding that Mont Blanc differed from the impressions I had received concerning him, or rather that I had gained but a very imperfect notion of the wonderful scenery of the ascent. I have compared my own experience in this respect with that of many Alpine travellers who have made the ascent, and I have never found one who has not said that the grandeur and strangeness of that upper region surprized him, familiar though he might be with Alpine scenery. I am not vain enough to suppose that I have adequately portrayed that which others have found it so difficult to describe; but the fact, perhaps, forms some excuse for the attempt to add the impressions of another mind to those previously on record.

Nor shall I have written in vain, should I have

succeeded in convincing some who might not otherwise have thought of it, that there is no expedition in the Alps better worth while to undertake—none which will more amply repay them for the labour and fatigue than this ascent. Nowhere else, I believe, are the wonderful phenomena of the glaciers exhibited, as they are upon Mont Blanc. No words can give more than a faint idea of the glories of that upper ice-world. It is so vast, so pure, so still and so solemn, the forms are so unutterably majestic, the crevasses so fearful, and yet so marvelously and fantastically beautiful, so deep, so wide, so blue and yet so delicately pale, so fringed and bedecked with festoons and inverted pyramids of icicles—the distances are so great, and yet each object appears so clear and so near; the banks of ice and snow are so steep, and yet swell and rise and fall with such perfect and exquisite grace, the day-break over the “iced mountain’s top” is so glorious and so dazzling, the night so strange and mysterious, that all description fails. It is only by climbing Mont Blanc that you get any adequate notion of his height. It is, from first to last, a merciless ascent; steep rises upon steep, and what from below looks like a gentle swell, or almost a plain, becomes the moment you approach it, a mountain of ice and snow, where every step is an ascending one, without pause and without remorse. On the Petit and on the Grand Plateau, you meet with actual levels; but each is traversed in ten minutes or a quarter of an hour, and with these two exceptions it is all collar-work, and generally *very* steep. There is no such thing as a gentle rise. It is like going upstairs. I was most struck with this fact on the Corridor and on the Calotte. The Corridor is heart-breaking; it is utterly deceptive—time after time you

think "This must be the top ; now for a peep into Italy—" again and again, fresh terraces of interminable snow, glittering in the early sun with a million crystal points, rise before the eye, and weigh upon the mind, until you begin to lose faith, alike in man and nature. You are always going *steeply* uphill ; you *must* zig-zag. It is too steep to go straight forward ; and yet those everlasting Rochers Rouges seem just as high above you as ever—it is a marvellous scene of illusion.

At length the top is crested ; and now the Mur de la Côte must be scaled. You press on ; with beating heart, you mount by rapid zig-zags, or by steps cut straight up the steep incline. The top is gained, and the Calotte is surely at hand. No such thing : a swelling dome, so gentle that the guides call it (Heaven save the mark !) a *plateau*, extends for a quarter of a mile. Press on ; those who scale Mont Blanc must not stay to rest, must go gently forward, but must not pause. The inclination of the Côte is small, but you are now some fourteen thousand feet above the sea, and cannot breathe as you did an hour ago. It is hard work—surely, between this dome and the foot of the Calotte, there must be a little hollow, or a little level space. Away with the thought—there is no rest to the mounting muscles for him who climbs Mont Blanc. The vast Calotte is still in front ; it looks now far vaster than it did from Chamouni, and it is with something like a groan of the spirit that you notice how high you must toss your head to look towards the top. At last, the Calotte is reached. A little way in front, are a few out-cropping rocks, the Petits Mulets : they look close by, but as you advance, they recede. "Doucement" is the word, here ; no need to call it out—the guides halt, every fifty paces, as by one com-

mon instinct—the lungs *must* have time to fill again. You cast one look on your party—every man's pale cheeks and livid lips show the altered atmosphere—new lines seem to have furrowed the cheeks of the older men—the younger look worn and fagged.

On you press—still the rocks recede from the wearying sight; and when, at last, you halt a moment by the Petits Mulets, you can scarcely believe you are there, and it is impossible to picture to yourself how much further off the summit may be. On you zig-zag—steeper and steeper for a while, and then, perhaps a shade less steep. “Voilà le sommet,” you waste too precious breath in exclaiming; “à peu près,” was, in our case, the reply of the tender-hearted Balmat, who could not bear to dash our hopes with a “pas encore.” You resign yourself to a sort of tacit despair; you feel that it is utter folly ever to think of *really* seeing the top, and you abandon yourself to a state of mere *pounding*, when suddenly a cheery voice exclaims, “voici le sommet.” You look up and answer—at least I did—resignedly, —“mais encore *bien* loin.” Strangest of strange illusions! the words are hardly uttered, when the head of the procession comes to a stop, the guides say, “maintenant il faut se détacher, afin que les messieurs puissent monter les premiers,” and with a light elastic step, all trace or thought of fatigue at an end, with a spring and a mutual shake of the hand, you and your companion bound together on to a long ridge of ice, and stand unexpectedly on the summit of Mont Blanc.

The difficulties of Mont Blanc are not of the same character as those presented by many other scenes of Alpine adventure. The perplexities of the route are almost all encountered in the first day's journey, and

with the exception of the short passage in the junction of the Glacier des Bossons and the Glacier de Tacanay, there are no intricate labyrinths of crevasses to be threaded, requiring the most practised eye and the nicest ice-craft to discover the way. There are, again, but three places where there is any risk from avalanches, viz. : beneath the Aiguille du Midi, from the small glacier which overhangs the approach of the Glacier des Bossons, and on the two plateaus. The latter are generally passed, in ascending, very early in the day, before glacier activity begins to be developed, and although I have seen a vast avalanche fall from the Dome de Gouté between the time that an ascending traveller had quitted the Petit Plateau, and the time at which he reached it on his return, I never knew a case in which any one had been actually exposed to the fall of an avalanche. There is room, moreover, to pass, leaving a considerable space of nearly level snow between your track and the base of the Dome, and I think the velocity of the blocks would be so far broken by the time they reached your neighbourhood, that no serious hazard would be incurred. Experience has shown, also, that there is practically very little danger by the present route in crossing the Grand Plateau. Beneath the Aiguille du Midi, there always must be some risk; and the gentlemen who ascended two or three days later than we did, escaped the fall of an avalanche there by less than a minute. But, on the whole, for an expedition of such magnitude, the ascent of Mont Blanc is singularly free from dangers of this class.

The real difficulty lies in the labour, in the uncertainty as to the state of the snow and the weather, and in the rarity of the air. I believe the well-fed, well-cared-for and unweighted traveller is often likely to suffer less from the altered atmosphere than his

guides ; and perhaps some of those who have attained great heights without inconvenience may think I make too much of this obstacle ; but I have known the most powerful men stricken down by the "mountain-sickness," and their upward progress effectually arrested ; and it often happens that the strongest of the party is the first to feel its effects. The same guide will, upon one occasion, ascend without the least uneasiness, while on another he will find himself utterly unable to pass the Corridor, or will sink exhausted on the side of the Calotte, without being able to account for the difference. The difficulty is therefore not a fanciful one. We reached the top, a party of eleven, all together, but I was told by M. de Veillet, the excellent Abbé of Chamouni, that he believed the circumstance was almost without precedent.

The labour is always considerable. It is idle to suppose that a height of between fifteen and sixteen thousand feet can be attained, under any ordinary circumstances, without hard work. It is true, there are persons who have made the ascent without fatigue or difficulty ; but such was not my own, nor is it the general, experience, and no one ought to calculate upon such good fortune, unless he be a very powerful man indeed. Even then, he may chance to learn, before he comes down, that "*le Mont Blanc n'est pas comme les autres courses.*" The ascent was effected, while I was at Chamouni last autumn, by a gentleman who was described to me as scarcely knowing the sense of fatigue, who had been fortified by a residence of more than a month at the Montanvert, and practiced by long daily explorations on the Mer de Glace. He happened to encounter a bad state of the snow, and, as I was informed, returned to the Grands Mulets in a state more nearly approaching exhaus-

tion, than he had ever been known to exhibit before.

There is nothing, however, from which a robust and vigorous man need recoil. I never knew a person who had taken proper care of himself suffer any evil consequences from the ascent of Mont Blanc. The cases of which one hears and reads, in which people have been frost-bitten and have lost toes or feet, have arisen, I believe without exception, not from over fatigue, but from neglecting the simple precaution of drying the shoes and stockings thoroughly at the Grands Mulets. In our case, I was rewarded by the best night's rest I have had since I was a child. I went to bed at eight, was asleep instantly, and never stirred till six the next morning, when I awoke, and rose fresh as a lark, without the slightest desire to turn round or go to sleep again. I continued my excursions daily, spending eight, ten, or twelve hours upon the mountains, and free from any lingering sense of unusual exertion.

It is often impossible to estimate beforehand the strength of the wind or the state of the snow. The fury of the wind on Mont Blanc is something that must be witnessed or felt, to be appreciated. I have watched from the Allée Blanche a light cloud carried past the summit, and whirled in four or five minutes past the Grandes Jorasses. The current of air must have been moving at the rate of seventy or eighty miles an hour. But if the sky be perfectly serene, and the surface of the higher glaciers free from loose snow, there may be no visible sign to suggest the existence of anything but a perfect calm. Then again, you leave Chamouni one day, and do not arrive at the summit until the middle of the next. It is impossible to say, in a mountain region, what changes may take place in four-and-twenty hours. Had we

slept at the Grands Mulets on the magnificent evening I have spoken of at the beginning of this chapter, not only would it have been impossible to continue the ascent the next day, but we might have esteemed ourselves fortunate if we had been able to return in safety across the Glacier des Bossons. Yet before sunset, no human being could have predicted what was going to happen.

It may be equally impossible to anticipate the actual state of the snow. The party who preceded us by three days only, found the snow deep and the walking most laborious. Their guides warned us that we must not expect an easy ascent. But wind and sun befriended us, and we found things just the reverse of what we had looked for. Two or three days later, the ascent was made by two Americans, gentlemen of great strength and activity. They encountered what was described to us as a "*niège mortelle*," and one of them, who had been accustomed to the chase in most quarters of the globe, and was therefore well trained to muscular exertion, told me that on the Corridor and the Calotte he felt as if his forehead were tightly bound with whip-cord, and that the veins of his head seemed ready to burst.

While, therefore, the ascent of Mont Blanc does not require the great skill and knowledge of the laws of glacier motion which some expeditions call for—the passage of the Col du Géant, for instance—it is one which may demand much strength, coolness, and judgment. Many a fair-weather guide would lose his head, if anything went wrong when he was at the top of Mont Blanc, separated by those immense and trackless wastes of ice and snow from all human aid or counsel; and although the difficulties have been, for obvious purposes, systematically exaggerated, I think no greater error

can be committed, than to regard the ascent as an easy, every-day excursion—a “promenade,” as I have often heard it called—to be accomplished with trifling exertion, and calling for the exercise of little precaution. Good guides are, therefore, indispensable, and, as much of the traveller’s comfort, and even his chance of success, will depend upon his passing a quiet night at the Grands Mulets, he should seek, if possible, some one to place at the head of the party, who can maintain his authority, and keep order among the rest of the guides. To get repose at the Grands Mulets is a very important matter. De Saussure and the early explorers were not men of less enterprize or strength than the travellers of the present day, and yet numbers of the early attempts failed. People were driven back with frozen hands and feet, exhausted, and even bleeding, and, generally speaking, they suffered far more than mountaineers of the present day. I believe, the night they passed in the open air, often in the snow, chilled by wind and frost, and put to all kinds of discomfort, impaired their strength, and unfitted them for the fatigue and exposure of the second day. It constantly happens, when the snow is heavy, that the men have to relieve one another, in making the steps, every four or five minutes, in the higher parts, and if the number of guides is very small, the labour becomes terrible.

Still, the Chamouni regulations are, in this, as in many other instances, preposterous, both as to the number of guides and the pay. One can hardly be surprised, considering the habit of continental nations to take care of the public, instead of letting the public take a little care of themselves, that four guides should be the number fixed for one traveller—though I think three would generally be a more reasonable allowance—but to oblige every member of

a party to engage the same number is a grievous imposition. The fact is, that many persons ascend Mont Blanc who have no business to do so, and who require a vast deal of assistance, in the way of pushing and pulling, from the guides; and the regulations are so framed as to make every person, without regard to health or physical power, take the number of guides which would be necessary for the most feeble. In most cases, five, or even four, guides would be sufficient escort for two travellers. It might occasionally happen that an ascent would fail which at present would succeed, but if these rules are to exist at all, they ought to be so conceived as to be applicable to the average of cases, and not to make every one smart, for the sake of meeting a rare exception.

The price is exorbitant. Think of paying an Englishman of the same class four pounds for a couple of days' work, however hard! I was speaking on this subject one day to a very intelligent and worthy man of the name of Bellin, (who is mentioned in the second chapter, as having accompanied me, when, with my wife, I bivouacked by the Lac de Tacul). "Why, Sir," he said, "in winter-time and spring, I am glad to earn twenty sous, and even fourteen sous, a-day, gathering wood from the mountain sides, carrying great weights on my back, working as hard as any guide in ascending Mont Blanc, and exposed to infinitely greater danger from avalanches: the thing is a *bêtise*." Here, then, is a real grievance, and I do hope that English travellers will unite to get rid of it. It is not at Chamouni that the change will be made; there are too few of the guides who understand their true interest. It is by representations to the higher authorities, the

Intendant of the province and the government of Turin, that a reform will have to be effected.

It may, perhaps, be impracticable, and it is doubtful whether it would work well, to abolish the tariff system altogether; but it wants thorough revision. Above all, opposition ought to be directed against that monstrous regulation which forbids the choice of guides. The Chamouni rules have already been eminently successful in driving away a class of travellers to whom Chamouni and Chamouni guides owe much; the men of bodily and mental activity, who love to seek the loftiest heights, and to explore new and untried regions, and who pay liberally for the assistance they require. The stream of Alpine enterprize is now steadily set away from Chamouni. The Oberland and the Monte Rosa district are already the head quarters of Alpine discovery. In two or three years time, even the ascent of Mont Blanc will almost cease to be made from Chamouni, and St. Gervais will take its place as the starting point, in spite of the far greater labour of climbing the Aiguille de Gouté, mounting the Dome and descending again to the Grand Plateau, in spite of the far superior attractions of the scenery on the Chamouni route, and in spite of the ancient traditions which make the thought of Chamouni pleasant to every lover of the mountains.

CHAPTER XVI.

GLACIER ACTION AND GLACIER THEORIES.

Ye ice-falls ! ye that from the mountain's brow
Adown enormous ravines slope amain—
Torrents, methinks, that heard a mighty voice,
And stopped at once, amid their maddest play—
Motionless torrents ! silent cataracts !

COLERIDGE.

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Striking nature of Glacier Phenomena—Activity of Glaciers—Moraines and Glacier Tables—Different Regions of a Glacier—Motion of Glaciers—Hugi—Agassiz—Forbes—Crevasses—The “ Gravitation Theory ” of De Saussure — The “ Dilatation Theory ” of Charpentier and Agassiz—Suggestion of Mr. Moseley—“ Viscous Theory ” of Professor Forbes—Mr. Christie's Experiment—Forbes's Experiments—Theory of Dr. Tyndall and Mr. Huxley—The Veined Structure—Professor Forbes's Explanation—Dr. Tyndall's—Regelation—The Difference between the Regelation Theory and the Viscous Theories not so great as has been supposed—Geological History of Glaciers—Erratic Blocks—Traces of Glacier Action in Wales—Former vast extension of Glaciers.

THERE is hardly a subject in the whole range of science more eminently calculated to arrest attention, and to excite interest, than the investigation of the phenomena and causes of glacier action. For, whether we regard those majestic accumulations of ice and snow, in themselves, and as forming some of the most picturesque and the grandest objects in creation, or

fix the mind upon the vast part which they play, and the vaster part which, in ages past, they have played, in the economy of the physical world; whether we contemplate them merely as the most striking features in the great panorama of the Alps, or the Himalayas, or as an important agent in securing to the interior of large continents regular and constant supplies of water, by means of the rivers which they feed, and which carry verdure and fertility into regions that would otherwise be but arid wastes, they are full of material for interesting speculation, to the lover of nature, the poet, and the philosopher, alike. Their phenomena are on a scale which cannot escape the notice of the most casual observer. Vast walls of granite boulders, built across the valleys, or along their sides—rivers arrested in their courses, and dammed up, so as to create great lakes—huge blocks of stone transported bodily from the loftiest summits to the lowest valleys—the solid earth wrinkled in front of the advancing mass, like a frail sheet of paper—the surface of the living rock rounded and polished, sometimes for miles together—such are the marks of their agency which meet the eye at every step, and which he who runs may read, though he may not understand. Nor is the eye the only sense to which they appeal. From morning till night, the glacier speaks with almost ceaseless utterance, now in the sharp report of an opening crevasse, like the crack of a rifle, now in the crash of the falling avalanche, like the roar of a hundred pieces of artillery. These indications of glacier activity are patent to every one; but for the philosopher, and the accurate and scientific observer, there are others, less obvious, but perhaps more instructive and significant. The tiny scratches on the polished rock—the light deposit of curved

and concentric dirt-bands, which can only be seen at sunset from some neighbouring height—the delicate veins of granulated ice, which intersect the denser and more closely compacted structure of the general mass—the superposition of different layers of snow, belonging to different years, as seen in the bosom of a deep crevasse—these are specimens of the language in which they reveal their origin, their composition and their history to the philosophic mind of a de Saussure, an Agassiz or a Forbes.

Considering the obvious and striking character of many of these phenomena, we are almost tempted to wonder, that it was so long before they attracted scientific attention; but our wonder ceases, when we reflect that the regions where alone these phenomena display themselves are remote and rugged, and that within little more than half a century, a journey to Chamouni was a scarcely less formidable undertaking than at present would be a journey to the wilds of Siberia, or to the icy wastes of Spitzbergen or Nova Zembla. De Saussure travelled among the valleys of the Alps with a retinue which would now suffice for a difficult exploring expedition in the Cordilleras, or the Rocky Mountains. In the northern valleys of Piedmont, and in the southern valleys of Switzerland, the more terrible apprehension of robbery and assassination was added to the awe inspired by natural obstacles and dangers. It is, therefore, not surprising, that the oldest and crudest glacier theory dates no further back than the time of that great philosopher and naturalist, de Saussure.

My purpose is not to give any elaborate details as to the structure and movement of glaciers, but simply to attempt a short and popular account of the different theories which have been framed to

explain the results observed, together with some examination of their respective merits. It is almost needless to say, that I make no claim to originality on behalf of this chapter, the contents of which are necessarily, in a great measure, abridged from Charpentier, Agassiz, Forbes, and other distinguished philosophers who have written on the subject of glaciers.

Reference has been made, in a former chapter, to the state of continual restlessness and change which characterizes a glacier; the following most animated and graphic picture of glacier life is drawn by Professor Forbes. Speaking of the Glacier de Miage, in the Allée Blanche, he says :

"The fissures were numerous and large; . . . so uneven, and at such angles, as often to leave nothing like a plain surface to the ice, but a series of unformed ridges, like the heaving of a sluggish mass struggling with intestine commotion, and tossing about over its surface, as if in sport, the stupendous blocks of granite which half choke its crevasses, and to which the traveller is often glad to cling, when the glacier itself yields him no farther passage. It is then that he surveys with astonishment the strange law of the ice-world, that stones, always falling, seem never to be absorbed—that, like the fable of Sisyphus reversed, the lumbering mass, ever falling, never arrives at the bottom, but seems urged by an unseen force still to ride on the highest pinnacles of the rugged surface. But let the pedestrian beware how he trusts to these huge masses, or considers them as stable. Yonder huge rock, which seems 'fixed as Snowdon,' and which interrupts his path along a narrow ridge of ice, having a gulf on either hand, is so nicely poised, 'obsequious to the gentlest touch,' that the fall of a pebble, or the pressure of a passing foot, will shove it into one or other abyss, and the

chances are, may carry him along with it. Let him beware, too, how he treads on that gravelly bank, which seems to offer a rough and sure footing, for underneath there is sure to be the most pellucid ice; and a light footstep there, which might not disturb a rocking stone, is pregnant with danger. All is on the eve of motion. Let him sit awhile, as I did, on the moraine of Miage, and watch the silent energy of the ice and the sun. No animal ever passes, but yet the stillness of death is not there; the ice is cracking and straining onwards—the gravel slides over the bed to which it was frozen during the night, but now lubricated by the effect of sunshine. The fine sand detached loosens the gravel which it supported, the gravel the little fragments, and the little fragments the great, till, after some preliminary noise, the thunder of clashing rocks is heard, which settle into the bottom of some crevasse, and all is again still.”\*

De Saussure, in his “*Voyages dans les Alpes*,”—one of the most delightful books of travels ever published—records a striking result of the gradual and progressive movement of a glacier, which, at the same time, afforded a conclusive proof of its continued activity during the winter season, during which period, it is worthy of remark, the motion was, for a length of time, believed entirely to cease.

He writes thus :—“As the glacier and its environs were wholly covered with snow, when it pushed forward the earth accumulated in front of its icy mass, this earth, in crumbling down, fell upon the snow, and made evident the slightest movements of the glacier, which continued under my eyes during the whole time of my observations. But it is in summer

\* “*Travels through the Alps of Savoy*,” pp. 198—9.



that the greatest effects are seen to result from this pressure of the ice against bodies which oppose its descent. The following is an example:—In the month of July, 1761, I was passing with my guide, Pierre Simon, under a very high glacier, to the west of the Glacier des Pélérins. I noticed a block of granite, of nearly cubical form, and more than forty feet each way, poised upon the débris at the foot of the glacier, and which had been deposited in this spot by the same glacier. ‘Let us hasten on,’ said Pierre to me, ‘for the ice which abuts upon this rock might push it forward, and roll it on to us.’ Scarcely had we passed, when it began to slip; it slid first gently enough over the débris which served for its base; then it fell upon its front face, then upon another face; gradually, it began to roll, and as the slope became more rapid, it began to take leaps, first small, but soon immense. At each bound, splinters, both of the block itself, and of the rocks upon which it fell, leaped into the air; these fragments rolled after it down the slope of the mountain, and so formed a torrent of rocks, great and small, which in their course crushed to pieces the top of a forest in which they finally stopped, after having, in a few moments, cleared a space of nearly half a league, with a noise and ravage which were astonishing.”

The vast and irresistible force exerted by a glacier in its progress is sufficiently evinced, not only by such phenomena as the one thus vividly described, but by the huge dimensions of the blocks carried along upon its surface, and the amazing mass often accumulated in its moraines. The great glacier table, figured in the frontispiece to the work of Professor Forbes already quoted from, was 23 feet long, 17 feet wide, and 3 or 4 feet thick, and rested upon a pillar of beautifully veined ice, 13 feet high, and was so

delicately poised that it was impossible to conjecture in which direction its fall would occur. Its contents may be estimated roughly, at more than 40,000 cubic feet.

In following the course of a glacier, by ascending from its base to its source among the mountains, the traveller passes through several distinct tracts or regions, marked by features almost as characteristic as those which distinguish the several zones of vegetation, at different elevations on the sides of Cotopaxi or Chimborazo. The first or lowest part of his path lies over a rugged mass, whose inclination often amounts to  $15^{\circ}$  or  $20^{\circ}$ , consisting of innumerable lumps of ice, firmly compacted, and marked by crevasses, whose curvature and general disposition assume a certain degree of regularity. Throughout this region, the snow which falls during the winter is completely melted during the summer. As he ascends, the slope of the glacier becomes gradually less, diminishing to  $6^{\circ}$  or  $10^{\circ}$ , till he has reached an elevation of some 8000 feet, at which height the region commences termed by the French naturalists, *Névé*, and by the Germans, *Firn*; "where the surface of the glacier begins to be annually renewed by the unmelted accumulation of each winter." The crevasses now become more irregular, attain dimensions more formidable than in any other part, and are further distinguished by often exhibiting in their sides a decided stratification, the several layers corresponding to the yearly deposits\* of snow upon the surface. Lastly, at an elevation exceeding 9000 or 10,000 feet, the glacier, as well as the peaks and ledges abutting upon it, is covered with snow of dazzling brilliancy.

We thus trace a gradual change in the state of

\* See note at the end of this chapter.

aggregation of the mass, from the highest part down to the lowest; a condition, namely, of progressive consolidation. While we thus see the snow which annually falls upon the higher slopes of the glacier gradually converted into strata of ice, and assimilated with the general mass, on the other hand we observe as constant a waste of the surface in the lower parts, and while, on the whole, the point to which a glacier descends remains nearly stationary, or as often recedes as advances, from year to year, the supply of fresh matter to its upper extremity, particularly during winter, is constant and un-failing.

These phenomena in themselves would afford, if not a positive proof, yet a strong presumption, that the comparison is a true one, by which glaciers have been so often likened to streams, and that the icy torrent, though its motion be utterly imperceptible to the naked eye, still presses forward with a constant, steady and irresistible force. This fact, long unnoticed by naturalists, is now universally recognised.

The reality of glacier motion was first incontrovertibly established by the observation of the fact that large and conspicuous rocks, resting upon the surface of the ice, changed their position, with respect to landmarks upon the adjacent mountain sides, and by the otherwise inexplicable circumstance that the blocks of which moraines are composed often belong to geological formations occurring only in spots far distant, among the highest peaks which crown the summit of the glacier.

In the year 1827, M. Hugi, of Soleure, in order to prosecute some geological and meteorological researches upon the glaciers of Lauteraar and Fins-teraar, erected a cabin of white granite on the moraine formed by their junction, near the foot of

the rock called the Abschwung. His stay there appears not to have been sufficiently prolonged to force upon his observation any change in the position of his hut; but in 1839, M. Agassiz, upon repairing to the same spot, found it 4400 feet below its original position, and again in 1840, 200 feet below. Between 1827, and 1839, M. Hugi had himself revisited the station, and had left in a bottle, within the cabin, a slip of paper, stating that in 1830 he had found it some hundreds of feet below its original position, and that in 1836 he had measured the distance, and found it to be 2028 feet.

In 1832, whilst pursuing his way to the Jardin, Professor Forbes found, on the Mer de Glace, the broken remains of a ladder, which, for various reasons, he concluded to be the one used, forty-four years before, by de Saussure, in his celebrated excursion to the Col du Géant. The ladder had probably been left at the foot of the Aiguille Noire, and after making due allowance for the curvature of the glacier along its channel, this gives a distance of about 13,000 feet, or a mean annual motion of about 300 feet.

To M. Agassiz is due the honour of having recorded the first exact and systematic examination of the question. In 1840, he erected, near to the remains of the cabin of M. Hugi, a hut, commonly known as the "Hôtel des Neufchâtelois," from which point observations were regularly made as to the progression of the ice.

The most detailed and exact results, however, are those obtained by Professor Forbes, who, in the months of June, July, August and September, 1842, made a series of elaborate and careful experiments upon the Mer de Glace of Chamouni. These experiments extended not only to the question of

the relative rapidity of the movement, at different seasons, and during the day and night, but to the comparative velocities of different parts of the same glacier—of the velocity at the source, as compared with that at the middle and lower extremity, and of the velocity at the centre, as compared with that at the sides. The total annual motion of the Mer de Glace was found to be about 480 feet, an estimate which may be fairly taken to represent also the average movement of other ice-streams. It was likewise demonstrated that the motion of the centre of the glacier is swifter than that of the sides, and that the velocity of the higher parts is exceeded by that of the lower.

The most remarkable and important general conclusions of fact, however, were the following: that “thawing weather and a wet state of the ice conduce to its advancement, while cold, whether sudden or prolonged, checks its progress;” and that there was a “general and simultaneous” connexion between the amount of motion observed, and the mean monthly temperature at Geneva and the Great St. Bernard, during corresponding periods—heat invariably accelerating, while cold as certainly retarded, the progression of the glacier. These two general deductions—which observation established beyond a doubt—are invaluable, as affording the means of testing the correctness of the two principal theories, which have been put forward to explain the phenomena of glacier motion.

Whatever theory be adopted, in regard to the precise force which urges a glacier through its channel, it is readily observed how the straining and contortion of the mass among the sinuosities of its bed necessarily produce the crevasses which constitute so striking a feature of glacier conformation,

and how, as a result of the different states of consolidation of the successive additions to its bulk, combined with the variation in the velocity of each portion of the stream, there are exhibited, wherever a section of the ice can be obtained, either vertically or horizontally, indications of a decided and peculiar stratification—the bands or layers of ice being contorted into characteristic curves.

The first hypothesis proposed to explain these phenomena was that of de Saussure, known as the “Gravitation theory.”

It represents a glacier as a body essentially rigid and inflexible, which slides along its channel, simply in virtue of its own weight.

There are, however, palpable and fatal objections to this view; for, if it were correct, it follows that any sudden increase in the inclination of its bed would be indicated by a proportionally sudden acceleration of the motion of the glacier; in fact, that the motion of any given point upon its surface would be irregular, instead of uniform. Moreover, in accordance with known mechanical laws, such a mass must increase continually in velocity, until it became, at length, a vast avalanche, more particularly in the case where the bed has an inclination of  $20^{\circ}$  or  $30^{\circ}$ .

After an interval of many years, another and more ingenious theory was propounded by Charpentier. Of this—the “Dilatation theory,” as it is called, which has been more fully developed and warmly upheld by Agassiz—the following is an outline:

The ice of glaciers is traversed, in every direction, by capillary fissures and air cavities; which, during the heat of the day, becomes filled with water, melted from the surface, which remains there, “ready to be converted into ice by parting with the very small portion of heat which it contains.” During the

night, this water freezes, and, in consequence of its expansion during congelation, the entire mass of the glacier undergoes a certain dilatation, the effect of which is to produce a forward motion of the body of the glacier, in the direction of least resistance.

It will be at once evident that this hypothesis is wholly incompatible with the fact conclusively established by Professor Forbes, that heat invariably accelerates, and cold as constantly retards, the progress of the glacier, no less than with the results of observations made by Agassiz himself on the temperature of the ice, for some depth below its surface, as registered by himself and his party, at their station on the Aar glacier. At a depth of seven or eight French feet below the surface, and downwards, the mercury never rose above the freezing point—any changes in the actual temperature of the ice being, in truth, entirely superficial and insignificant.

If it be true, then, that water, in becoming ice, parts with a very small quantity of heat, how is it enabled thus to remain in contact, during the day, with surfaces at and below the freezing point, without almost instantly losing that small degree of heat, and being frozen? But the fact is, that a pound of water at  $32^{\circ}$  Fahrenheit, in becoming a pound of ice at  $32^{\circ}$ , parts with a very *large* amount of heat. Every one has noticed the long period often required for the gradual liquefaction of a large mass of ice or snow; and the vast supply of heat thus poured in, to produce the fluid state, is not lost or dissipated, but becomes “latent” in its mass. If the melted water be then frozen once more, this large quantity of heat is again given out, and becomes appreciable, so that the degree of cold necessary to produce congelation in a given weight of water is measured by the amount of heat required to melt the same weight

of ice. Experiment, however, has shown that, in the congelation of water, as much heat is given out as would raise its temperature, if it could be so applied, by  $142^{\circ}$  Fahrenheit.

There is, therefore, no reason to believe that the water infiltrated into the capillary fissures of the glacier is subject to periodical congelation, in the manner assumed by this theory—at any rate, to such an extent as to be capable of producing the motion observed. The relative velocities at different times, and in various parts of the glacier are also at variance with the requirements of this hypothesis.

A later attempt to connect glacier motion with some general principle adequate to explain its peculiarities is to be found in the "Proceedings of the Royal Society" for 1855, p. 333. It relies mainly upon the ordinary law of expansion among solids. Mr. Moseley, the author of this suggestion, quotes, as an apt illustration, an instance in which a large sheet of lead, on the roof of Bristol Cathedral, by its alternate expansion and contraction, drew the fastenings out of the beams, and descended bodily, in the course of two years, a distance of about eighteen inches, towards the lower edge of the roof.

The theory, however, wholly fails to explain the general progression of glacier streams, inasmuch as the action attributable to expansion can be, at most, wholly superficial; nor does it seem adequate to account for any of those distinctive peculiarities inherent to the structure of glacier ice.

It remains only to notice the theory proposed by Professor Forbes, to whose precise, mathematically accurate experiments allusion has been so often made. It is an hypothesis which explains so consistently every fact in the history and phenomena of



glaciers, as well in its minutest details, as in its broadest features, and is, at the same time, so admirably simple, as almost to have lost its speculative character, and taken its stand among geological certainties.

It is thus enunciated :—“ A glacier is an imperfect fluid, or a viscous body, and is urged down slopes of a certain inclination, by the mutual pressure of its parts.”

Now, upon reading this definition, the mind is involuntarily startled by the description of a glacier as a semi-fluid body ; ice, in the masses in which we are accustomed to see it, appears so devoid of plasticity, that the conception of its viscosity presents, undoubtedly, at first sight, a formidable difficulty. We must, however, bear in mind, that we observe among some bodies, such as, tar or plaster, every conceivable degree of cohesion, from that of almost perfect fluidity to that of solidity, without being able to draw a distinct line of demarcation between the several grades through which they pass. Stockholm pitch has been proved (Phil. Mag. for April, 1845), to move with extreme slowness under its own weight, when so far solid as to break into fragments under the blows of a hammer.

Every one is familiar with the elasticity—often considerable—exhibited by the thin sheets of ice which cover our ponds and pools, in the winter, as they bend and swell beneath the passing weight of the skater ; and the following experiment, devised by Mr. Christie (the late Secretary to the Royal Society), clearly demonstrates that “ under great pressures, ice preserves a sufficient degree of moulding and self adapting power to allow it to be acted upon as if it were a pasty mass.”

A strong iron shell, with a small fuse-hole, was

filled with water, and then exposed to severe cold. As the congelation of the mass proceeded, the ice inside was forced out through the aperture, in a narrow cylinder, gradually increasing in length, until all the water was solidified. "As we cannot doubt that an outer shell of ice is first formed, and then another within, the continued rise of the column through the fuse-hole must proceed from the squeezing of successive shells, concentrically formed, through the narrow orifice; and yet the protruded cylinder consists of entire, not of fragmentary, ice."

When we take into consideration the minuteness of the motion of glaciers, as compared with the entire length of their mass, it is now less difficult to conceive how the vast mutual pressure of their particles may produce a degree of viscosity, or semi-fluidity, actual, and sufficient to generate the phenomena observed, though inappreciable, and apparently disproved by, the evidence of the senses, and only to be discovered by minute, accurate and philosophical observation.

The peculiarities of glacier motion exactly fulfil, in every particular, the conditions well known to mathematicians as those of the flow of semi-fluid substances; such, for example, as the greater velocity in the centre, than at the sides of the stream, and in the lower, than in the upper portions.

The curves observed in the stratification of glaciers are precisely similar to those exhibited in the structure of bodies admitted to be viscous while in motion. It occurred to Professor Forbes to imitate the movements of glaciers, in those of a substance capable of flowing with extreme slowness, and ultimately solidifying; for this purpose, he employed a mixture of glue and plaster of Paris, and by allowing alternate layers of this mixture, coloured

differently, to flow down a slightly inclined plane—a mimic glacier channel—obtained casts, presenting, in their sections, curves which resemble, in a very striking degree, those actually seen in the Swiss glaciers.

The experiment is easily verified,\* and the sections of the models thus formed, vertical to the direction of motion, will be seen to present the characteristic concave curves so conspicuous in several of the Swiss ice-streams, while those taken horizontally exhibit elongated curves, whose convexity is in the direction of motion, and the surface itself is traversed by crevasses in miniature, whose general disposition pretty accurately represents what is seen on the actual glacier.

This very close resemblance between the structure of glaciers and that of bodies undoubtedly semi-fluid or viscous in their character, while in gradual motion, affords, at least, a very strong presumption that the same mechanical conditions which produce the phenomena of the latter prevail also in the case of the former; it is, in fact, not only a beautiful illustration, but a pointed and decisive confirmation, of the theory.

A theory of glacier motion has lately been propounded by Dr. Tyndall and Mr. Huxley, which is intimately connected with the phenomenon known as the “veined structure” of glacier ice. It becomes necessary, therefore, to explain concisely the nature

\* I have not myself repeated the experiment, but I have seen it performed by one of my brothers who was desirous of testing its accuracy. The reproduction, in miniature, of many of the most remarkable and significant phenomena of the glaciers is very curious and interesting. The results which I saw were in exact and minute accordance with those described by Professor Forbes.

of this structure, and of the hypothesis by which it has been sought to account for its formation.

Wherever the structure of compacted ice is displayed, as in the vertical walls of a crevasse, it is found to consist of alternate bands of blue and white ice lying side by side in parallel plates or laminæ, presenting different degrees of hardness. One of the great problems in glacier science is to account satisfactorily for these alternating bands of varying density and colour. The theory originally suggested by Professor Forbes for its explanation was that the unequal motion of different parts of a glacier—which is most rapid in the centre, and least rapid where it is in close contiguity to the sides, and affected, therefore, by friction—causes "a solution of continuity between the adjacent particles of ice to enable the middle to move faster than the sides." Hence, innumerable fissures are formed between the different slices, so to speak, which move on, side by side, with varying velocities. These fissures are filled with the superficial drainage of the glacier, and in time are frozen up, and thus "produce the appearance of bands traversing the general mass of ice having a different texture." The banded structure, however, is found not only at and near the sides, where a considerable amount of differential motion exists, but also in the centre of the glacier, where no such tension takes place. Here, therefore, Professor Forbes supposed that, the lateral friction being of little effect, another force comes prominently into action; and that, as there must be a great pressure from behind, owing to the weight of the upper part of the glacier, and as the body is of very imperfect fluidity, the resistance of the mass in front to the pressure behind, uninfluenced by the lateral friction, causes the particles of moving ice to "slide upwards

and forwards over the particles immediately in advance." Hence the differential motion will be in a different direction from what it is at the sides. The planes of separation will be across the axis of the glacier, instead of being nearly parallel to it, and will have a *dip* towards the horizon, varying with the amount of resistance in front, and the amount of pressure from behind—varying, that is, according to the respective distances from the end and from the origin of the glacier.

Subsequent investigation, however, led Professor Forbes to the belief that the veined structure is the effect of "pressure upon the loose and porous structure of the snow." (Thirteenth letter on Glaciers, December 21, 1846). As the different portions of the descending mass move onwards with varying velocity, subjected to the enormous compression which is the starting point of every theory, some parts will be kneaded or worked against others, and by this means, snow will be converted into ice, in parallel bands corresponding with the direction of the planes of separation. A familiar instance of the conversion of snow into ice under pressure is afforded when boys make a slide upon snow. In a short time, the loose, uncompacted snow becomes a sheet of hard and glassy ice.

Dr. Tyndall, when he first brought forward his views, would seem not to have been aware of this later opinion of Professor Forbes; for in a lecture upon the theory of glacier motion, delivered at the Royal Institution, January 23rd, 1857, he made no mention of it, and devoted a considerable part of the lecture to certain objections which he urged to Professor Forbes's original explanation of the veined structure by the congelation of infiltrated water. During an examination of glacier-ice made by Mr. Huxley and

himself, in the summer of 1856, they discovered, it was stated, distributed throughout the mass of the glacier, long and narrow lenticular cavities filled with clear blue ice,\* such ice as forms the *blue* bands of the veined structure, and which was at one time supposed by Professor Forbes to be the product of the congelation of the infiltrated drainage-water. It was not expressly stated, but it would seem from the diagrams referred to, as well as from the nature of the argument, that these masses are found in a direction of general parallelism to the direction of motion of the glacier. According to Dr. Tyndall, they vary very much in size. One observed by him and Mr. Huxley was two feet long by two inches broad, others two inches long by a fraction of an inch in breadth; and one measured no less than ten feet long. How, he argued, could motion such as that suggested by the viscous theory have produced these lenticular cavities in the middle of the glacier? Had there been the suggested thrust from behind, and resistance in front, they would certainly have been closed up. Secondly, says Dr. Tyndall, if the explanation given by Professor Forbes of the formation of the blue bands be correct, the fissures, in which the reservoirs of water which make the blue bands are formed, must be of equal thickness; and before the water in them is

\* Mr. John Ball, in a valuable paper contributed to the Lond. Ed. and Dubl. Phil. Mag. (Dec. 1857, Vol. xiv, p. 493), takes a just exception to the description given by Dr. Tyndall and Mr. Huxley of the "Lenticular Structure" of glacier ice. "So long," he says, "as the new expression was confined to the particular and unusual condition of the ice, no objection could be made to it; but if I am not under a grievous misconception in believing that the blue veins may usually be traced for a distance of many yards, and almost constantly for several feet, I may be permitted to appeal to the subsequent and wider experience of the authors of this new term against the use of it as generally descriptive of the phenomenon to which they seem disposed to apply it."

frozen, they should be found filled with clear blue water. The blue bands vary from a fraction of an inch to many inches in thickness, and, therefore, such fissures could scarcely escape observation if they existed. But they have never yet been found, and may therefore be assumed not to exist. According to Professor Forbes himself, the freezing takes place chiefly, if not exclusively, in winter; so that, throughout the summer, the matrices of these blue bands should present themselves as narrow reservoirs of clear blue water—a phenomenon which no observer has ever yet discovered.

Such is an outline of Dr. Tyndall's objections to the theory which accounts for the blue veins by the freezing of the glacier-drainage. As between him and Professor Forbes, however, the discussion of these objections seems hardly called for, since Professor Forbes recanted, so to speak, in 1846, and published his own corrected view, ascribing the veined structure to pressure. In an elaborate article contributed to the "Westminster Review," (April, 1857), by a writer deeply imbued with the views of Dr. Tyndall and Mr. Huxley, and in which those views are warmly advocated, it is very properly remarked that the change in Professor Forbes's views renders it unnecessary to inquire whether his original opinion was correct, or not.

Dr. Tyndall discards altogether the notion that ice is a viscous or plastic body. Wherever, he says, the banded structure displays itself, the ice is found to follow a law discovered by himself, and which is applicable to every substance in nature not strictly homogeneous. When subjected to and consolidated by pressure, the phenomenon of *cleavage*, or the property of being capable of lamination in definite and parallel planes, is exhibited. Take a piece of

slate rock, pound it into powder, mix it up with water into its original mud, subject it to pressure, and you reproduce the original slate, capable of being split into parallel tables equally with a slab fresh from the quarry. Wherever the banded structure is found, the property of cleavage exists. The comparison, which Professor Forbes himself suggested, to slaty cleavage is, according to Dr. Tyndall, no mere analogy. The planes of cleavage in the ice, as in the slate, are always found to be perpendicular to the direction of greatest pressure—a fact which was suspected though not established by Professor Forbes himself. Dr. Tyndall considers that the lenticular masses observed in the glacier ice are analogous to the blue and green lenticular masses which occur in common slate, and present themselves to every schoolboy's eye. The similarity of form suggests a common origin, and they are probably due to analogous causes, whatever those be, in each case. The laminated structure, therefore, according to Dr. Tyndall, is not due to differential motion, but is the genuine effect of pressure acting in a direction perpendicular to the structure.

But ice, it will be said, must be plastic, to reunite under pressure, as it does in the course of its descent. Dr. Tyndall thinks this phenomenon strictly in accordance with the common and obvious properties of ice; and he exhibited at the Royal Institution, and has since, in his published papers, referred to, a number of interesting experiments, in which lumps of ice were put between moulds of various forms, and, being subjected to severe pressure, were broken and crushed, and the fragments squeezed together again into solid bodies of a totally different shape. This phenomenon he attributes, not to viscosity, but to the property which was announced



by Dr. Faraday in 1850, and which Dr. Hooker has named "regelation"—in virtue of which two pieces of ice at  $32^{\circ}$ , being subjected to pressure, will be frozen together, and unite by a series of slender icicles or columns of ice, running into one another, so as to form one solid mass. That this was the result of some distinct and independent property, and not merely, as had been once supposed, the effect of evaporation upon the wet surface, was shown by the fact that the process takes place with equal certainty under water, and even under boiling water. It is in virtue of this principle, according to Dr. Tyndall, that snow becomes converted into ice at depths below the surface at which the effects of external temperature are inappreciable. It is in virtue of this principle that ice, broken into fragments by pouring over a ridge in its bed, or by being precipitated over the edge of a precipice, is reconstructed on a gentler slope, or at the foot of the rock from which it fell, and the glacier flow is continued, or a fresh secondary glacier formed, as the case may be.

The chief merit of the views advanced by Dr. Tyndall and Mr. Huxley appears to me to consist in the greater distinctness and prominence which they give to the operation of pressure upon ice as producing cleavage—a subject which is alluded to and suggested, over and over again, in Professor Forbes's writings, but never pursued to the extent to which the later investigators have carried it. In other respects, it may well be doubted, I think, whether the arguments propounded by Dr. Tyndall really touch the viscous theory at all. Dr. Tyndall says ice is not viscous; the idea is contrary to all we know of its physical properties; and he appeals to the experiments which have been mentioned, as conclusive proof that the change in the form of the blocks of ice takes place

through fracture and regelation. With unfeigned diffidence, I am unable to see that this conclusion is fairly deducible from them, or that they go further than to show that some of the phenomena of that pressure the existence of which all theorists alike take as their starting-point—to whatever causes they attribute it, or whatever may be the precise part they make it play in the glacier economy—may be exhibited upon hand specimens, as well as in the vast masses upon which nature displays her workings. If so, they really do not assist Dr. Tyndall. Indeed, an argument may fairly be drawn from the completeness of the re-union of the crushed fragments in favour of the viscosity or semi-fluidity of ordinary ice. There is something very peculiar in the sound emitted by the ice when subjected to the pressure employed in these experiments. It is anything but the sharp short crack of most substances of undoubted brittleness; it is a protracted, creaking, hissing sound, indicative rather of yielding than of breaking, and strongly reminds one of the sound given by cork when violently squeezed.

Be this as it may, however, the substance of which a glacier is composed is very different from common ice. Professor Forbes considers it to be rather a mixture, or compound, of ice and water, than a mass of mere ice. This may well be the case even in the winter, and down to its lowest depths. Balmat has told me that upon two occasions, when crossing the Mer de Glace and the Glacier des Bossons in the middle of winter, he has struck his alpenstock through the covering of snow and found a pool of water underneath. At a very few feet below the surface, the temperature is probably very nearly uniform throughout the year. Dr. Tyndall, in a late lecture at the Royal Institution, has shown that the phe-

nomena of regelation *will not take place*, unless moisture be present amongst the particles of ice operated upon,\* and every schoolboy knows that he cannot make a snowball, unless the snow is melting. Thus, then, the regelation theory affords a striking and unexpected confirmation of the fact that a glacier is a mixture of ice and water.

The name and the peculiar nature of regelation were not known when Professor Forbes wrote; but it is perfectly evident from his Thirteenth letter, and from very many passages in his works, that he was aware of the effects of pressure (a condition of regelation), in producing the union of contiguous fragments, whether of snow or of disrupted ice.

The term "viscous" as applied to ice, has been strenuously objected to; but Professor Forbes's theory does not depend upon a word. It is, in truth, just what a theory should be, rather a compendious epitome of a multitude of observed facts, than a speculation. It will not be denied, in the present day, that certain facts have been established with regard to the motion of glaciers, which correspond in a remarkable manner with the observed facts relative to the motion of semi-fluid bodies. Even Dr. Tyndall, though the zealous supporter of a new theory, has hardly questioned the accuracy of a single fact established by the laborious investigations, and the numerous and accurate measurements of Professor

\* I am disposed to think that when Professor Forbes, speaking of the slide, says the snow is converted into ice "by pressure and friction alone, without the slightest thaw," there is probably an error, and that the friction produces just thaw sufficient to enable regelation to take place. In arguing from the slide to the glacier, however, Professor Forbes points out the difference, and the greater readiness of the glacier snow to be transmuted, in consequence of the quantity of ice-cold water with which it is saturated.

Forbes; and his lectures and published papers contain ample evidence that the numerous analogies between the motion of a glacier and that of a pasty fluid, are recognized by him no less than by his opponents. In the lecture of the 23rd January, 1857, some of Professor Forbes's experiments upon the flow of semi-fluids were repeated, as illustrative of certain phenomena of glacier motion. Why draw an illustration from the flow of the mud, if the mud and the glacier have nothing in common? In the latest paper they have published upon the subject, Dr. Tyndall and Mr. Huxley have again recourse to the same class of illustrations, observing that "owing to the property of ice described in s. 3," (Regelation), "the resemblance between the motion of a substance like mud, and that of a glacier is so great, that considerable insight regarding the deportment of the latter may be derived from a study of the former. From the manner in which mud yields when subjected to mechanical strain, we may infer the manner in which ice would be *solicited to yield* under the same circumstances." (Phil. Trans. 1857, p. 338.)

What is this but saying, in other words, that the consequences of the property of regelation are such that the phenomena of glacier motion and those of the motion of mud are very much alike? May it not turn out, either that regelation, (or, if one may coin a word; *regelativeness*) is only another name for that particular kind of viscosity possessed by the ice of glaciers, or that the term carries us one step higher in the chain of causes and effects and *points to the reason why glacier ice is viscous*? Why should it be instructive thus to observe the deportment of substances of undoubted viscosity, if there is no real analogy between their construction and that of a glacier—if the similarity be not the result

of analogy but a mere accidental coincidence? The conclusion seems to be inevitable that Dr. Tyndall, while objecting to the term *viscosity* as applied to ice, and having commenced the controversy by utterly denying the fact that glacier ice possesses properties analogous to those of a semi-fluid body, has been gradually forced, by a larger consideration of the question, and by more extended observation, to approach much nearer to the viscous theory than, at one time, he would have been willing to admit. Nor is it immaterial to observe that the views originally propounded by Dr. Tyndall were not grounded, like those of Professor Forbes, on the accumulated experience of months and years spent amidst the ice-world. Dr. Tyndall does not refer to any observations upon glaciers made by himself prior to 1856, and there is a remarkable note to the paper by Dr. Tyndall and Mr. Huxley, in the *Philosophical Transactions* for 1857, p. 334, in which they speak of the "Système Glacière" of Agassiz, as a work "which, until quite recently, they had not the opportunity of examining." The argument, from mere *authority*, however, in matters of science, ought to go but a very little way, and I should be very sorry to use it for more than it is worth. Science gains greatly by the candid discussion of questions of this nature, and there is no scientific subject upon which he touches, upon which Dr. Tyndall is not likely to throw valuable light; but it is not unreasonable to say, that views formed upon a much less protracted consideration of the subject, hardly possess quite the same claim to ready acceptance as those of Professor Forbes, whose labours in this field of inquiry have been extended over so many years—the duration of whose investigations may be measured by months, where that of Dr. Tyndall's researches is

counted in days, and the extraordinary care and accuracy of whose observations upon matters of fact have been impugned by no subsequent inquirer.

The effect of the discussions which have taken place upon the theories of glacier structure and motion will undoubtedly be, to direct fresh attention to this most interesting subject, and, by a fresh series of experiments and investigations, to advance the great end of all scientific inquiry—the attainment of truth. At present, however, it is scarcely too much to say that the acute and ingenious papers of Dr. Tyndall and Mr. Huxley, though valuable contributions to glacier literature, have not endangered the position of the viscous theory.

A few words may not be out of place, as to the part which glaciers have played in the geological history of our globe.

The occurrence of rocky fragments, or boulders, (erratic blocks as they are called) whose appearance and conformation are precisely analogous to that of the masses which compose modern moraines, at distances remote from any spot where the same geological structures are found *in situ*, has given rise to a remarkable theory, broached by MM. Venetz and Charpentier, and now strenuously supported by that great philosopher, M. Agassiz, and by our own no less illustrious Forbes.

The celebrated Pierre-à-Bot, near Neufchâtel, of which the length is from 50 to 60 feet, with a breadth of 20 feet, and a height of 40 feet, is composed of protogine, a granite common in the Alps, which contains talc in place of mica, but not found *in situ* within 60 or 70 miles, as the crow flies, from the spot where this block now stands. In the valley of St. Maurice, Professor Forbes tells us, are seen what are known as the "blocks of Monthey," a collection of "blocks

of granite 30, 40, 50, and 60 feet in the side—not a few, but by hundreds, fantastically balanced on the angles of one another, their grey weather-beaten tops standing out in prominent relief from the verdant slopes of secondary formation on which they rest. The blocks are piled one on another, the greater on the smaller, leaving deep recesses between, in which the flocks, or their shepherds, seek relief from the snow-storm, and seem not hurled by a natural catastrophe, but as if balanced in sport by giant hands. For how came they thus to alight upon the steep, and there remain? What force transported them, and when transported, thus lodged them high and dry; 500 feet at least above the plain? We reply, a glacier *might* do this: what other inanimate agent could do it, we know not.”\*

Now, such fragments not only occur in Switzerland, at spots eighty, ninety, and a hundred miles from any strata of similar geological character—not only do they appear all over the great Swiss plain, and upon the flanks of the Jura opposite Mont Blanc, but in the “drift” of the south-east of our own country, in Scotland, where they are accompanied by the most distinct and characteristic glacier striations, on the shores of the Baltic, and in Russia and Denmark.

The supporters of the theory now under consideration maintain that glaciers are the only agents capable of producing the effects in question, and that at a remote geological era, an enormous system of glaciers covered the Swiss plain, as well as a large portion of the European continent. We have not far to seek for an overwhelming weight of testimony, that at some former period, glaciers existed

\* Travels through the Alps,” p. 52.

in many parts of the world, where the conditions of climate now totally prohibit their formation. The rocky sides of almost every valley in the neighbourhood of Snowdon are notched and scored with striæ, identical in every particular with those to be seen on the cliffs which border the Mer de Glace, or flank the passage of the Grimsel. Not only are such indications to be found at Pont-Aber-Glassllynn and in the Vale of Llanberris, but they may be traced far below Lake Ogwen, in the Vale of Nant Francon, and are exhibited with remarkable vigour and distinctness throughout the pass of Nant Gwynant, and up the valley which falls into it on the north, as far as the very base of Snowdon and the foot of Grib Goch, the great red peak which flanks Snowdon on the north-east.

*Rochers moutonnés*, as characteristic and unmistakeable as those of the Höllenplatte or the Gorner Gletscher, are to be seen between Capel Curaig and Beddgelert,\* and I have traced them, by the side of

\* The following remarks I have extracted from a letter I received in May, 1856, from my brother, (before alluded to as having repeated some of Professor Forbes's experiments) who was then travelling in N. Wales; he says: "Last night, I had a fine ramble over the hills forming the Western side of the Pass of Beddgelert, where I took some pains to examine the rounded rocks which abound, right up to the summits. Indeed, they are most striking very nearly at the top, being there nearly as smooth as at the Höllenplatte, near Handeck, and particularly in one part, where there is a fir-wood full of them. But they descend quite to the road, and have throughout the characteristics of glacier rocks—the roundness, so distinct from that produced by water, and the striations, not always parallel to one another, and slanting downwards; not possible to be confounded with marks of stratification, as they cross these at a considerable angle. Some of these slabs are, I think, forty feet high, and very smooth." He adds: "the abrasions of these rocks is evident from the fact that the veins of quartz which run through them project, in places, nearly half an inch. The rock is slaty or shaly, intersected by veins of quartz and lodes of copper ore." In the Appendix (No. III), I have attempted to describe some of the phenomena which indicate the ancient glacier system of Snowdonia.



the high road, to within five miles of Bangor. This is but one example out of scores: the sides of Ben Nevis bear testimony equally irrefragable to the reality of a period, in which the snow-level was many thousands of feet lower than at present. Seeing, therefore, that it is undeniable that extensive glacier systems must once have had a place, in countries from which they have altogether disappeared, there is little difficulty in admitting that in districts where they still occupy hundreds of square miles, they may, in former ages, have existed on a scale infinitely more stupendous than anything of which the present condition of the globe affords an example.

The theory in question, therefore, does not seem too large demands on our imagination, when it asserts, in the language of M. Agassiz, that, "at this time, all the glaciers of the lateral ravines of the Valais were mingled at the bottom of the great plain; all those of the Bernese Oberland reached the basin of the Lakes of Thun and Brienz; those of the Grisons extended to the principal valley of the Rhine; those of the Valteline, to the basin of the Lake of Como; and lastly, those of Canton Tessin descended to the Lago Maggiore."

Other causes have been assigned, to account for the wide-spread distribution of erratic blocks, and many eminent names lend authority to the theory which supposes great débâcles, or floods of waters, to have been the agents of their transportation; but the occurrence of boulders in positions in which it is quite inconceivable that water should, under any circumstances deposit them, the absence of all sorting, according to weight, among them the sharpness of their edges—so completely in contrast with the rounded appearance usually produced by the action of streams—and various other circumstances connected with their condition and

situation seem strongly to discountenance such a supposition.

That the force of glaciers, even of ordinary size, is abundantly sufficient to produce these results, and is capable of transporting masses of rock of almost *unlimited* size, is beyond doubt; and the enormous bulk of the moraines of modern and now-active glaciers (e. g. that of the Glacier de Miage, which reaches a height of 400 feet) sufficiently attests the vastness of its effects.

The phenomena of glacier action bear witness, in common with all others of a similar character, to the stupendous magnitude of the periods representing those great changes which have, from age to age, modified our earth's surface. Some of these must be reckoned—if such a word can be used in regard to numbers too vast to convey to the bewildered sense any definite idea—not by years, but by myriads of ages, and even the time necessary for the transport of some of the erratic blocks of the Jura to their final position must be counted by thousands of years.

NOTE.—I have referred, in a note in Chapter I., to a paper of Mr. Ball's, in which reasons are given for thinking that each layer of the *névé* beds, as seen in the face of a deep crevasse, does not indicate so much the fall of *one year*, as each considerable fall that has taken place, followed by an interval of fine weather; and I have mentioned that I came near to forming the same opinion myself—viz.: when after the very stormy night mentioned in Chapter XV., I saw the whole of the then visible portions of the Glacier des Bossons perceptibly tinged with a reddish hue by the dust which had been scattered upon the surface, during that one night. I imagine, however, that such deposits as may be caused in this way are represented by the finer lines into which the strong markings, which I, in common with most other persons, have been accustomed to consider indicative of annual increment, shade off, and that the broad band of purer ice or snow beneath belongs, in all probability, strictly to the winter's deposit. The annual bands may be admirably seen on the terrific *séraques* which tower above the Petit Plateau.



## APPENDIX.



## APPENDIX.

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### I.

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THE following lists of plants have been kindly supplied me by a friend, with whom I had the pleasure of travelling for six weeks during my tour in 1852, and who has botanized many parts of Switzerland with great diligence. They do not profess, by any means, to exhaust the neighbourhoods under which they are classed, but still they afford some guide as to a few of the rarer and more interesting plants likely to be found in the several localities.

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### INTERLAKEN.

*Aconitum lycoctonum*.

„ *napellus*.

*Actæa spicata*.

*Alchemilla fissa*.

*Androsace chamæjasme*, (Wengern Alp).

*Anthericum ramosum*.

„ *Liliago*.

*Aquilegia atrata*, (Valley of Lauterbrunnen).

„ *Alpina*, (on the Faulhorn).

*Arabis Alpina*, (Wengern Alp).

*Aster Alpinus*, (Wengern Alp).

*Campanula barbata*.

„ *rhomboidalis*, (Valley of Lauterbrunnen).

*Coronilla emerus.*

*Cyclamen Europæum*, (woods on the shores of the Lake of Thun).

*Czackia liliastrum.*

*Daphne mezereum.*

*Dianthus superbus.*

„ *sylvestris.*

*Digitalis lutea.*

„ *grandiflora.*

*Draba aizoides.*

*Dryas octopetala*, (rocks north of the Lake of Brientz).

*Erica carnea*, (south side of the Lake of Thun, on the borders of the woods).

*Erinus Alpinus*, (rocks at the foot of the Harder).

*Gentiana acaulis*, (Wengern Alp).

„ *asclepiadea*, (in the woods).

„ *ciliata.*

„ *cruciata*, (south shore of the Lake of Brientz).

„ *lutea*, (Wengern Alp).

„ *pneumonanthe*, (in the marshes on the borders of the Lakes of Thun and Brientz).

„ *verna.*

*Geranium palustre.*

„ *sanguineum*, (at the foot of the Harder).

*Globularia cordifolia*, (foot of the Harder).

*Goodyera repens*, (woods north of the Lake of Thun, about a mile above Neuhaus).

*Helianthemum fumana*, (rocks on north shore of the Lake of Thun, a mile and a half from Neuhaus).

*Hepatica triloba*, (in most of the woods).

*Hippophae rhamnoides*, (south shore of the Lake of Brientz).

*Impatiens noli me tangere*, (Valley of Lauterbrunnen).

*Lactuca perennis*, (near the cavern of St. Béat, above the Lake of Thun).

*Linaria Alpina* (close to the lower glacier of Grindelwald).

*Luzula albida.*

*Maianthemum bifolium.*

*Melittis melissophyllum* (near the cavern of St. Béat, above the Lake of Thun).

*Moehringia muscosa*, (Valley of Lauterbrunnen).

*Nigritella angustifolia*, (*Orchis nigra*—Wengern Alp).

*Ophrys apifera.*

*Orobus tuberosus.*

*Physalis Alkekengi.*

- Polygala chamæbuxus*, (borders of woods on south side of the Lake of Thün, near where the river enters the lake).  
*Potentilla argentea*, (Valley of Lauterbrunnen).  
     "    *villosa*.  
*Prunella grandiflora*.  
*Pyrola secunda*, (in the woods).  
     "    *uniflora*, (Valley of Lauterbrunnen).  
*Rhododendron ferrugineum*.  
*Salvia glutinosa*.  
*Saponaria ocymoides*, (rocks just above the river on north side).  
*Saxifraga rotundifolia*, (on the road to the Abendberg).  
*Silene acaulis*.  
     "    *nutans*.  
*Spira aruncus*, (borders of the woods).  
*Tetragonolobus siliquosus*.  
*Teucrium montanum*.  
*Thalictrum aquilegifolium*.  
*Trifolium Alpinum*, (Wengern Alp).  
*Vaccinium myrtillus*.  
*Viola biflora*, (Valley of Lauterbrunnen).
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## GHEMML.

- Androsace Alpina*.  
     "    *chamæjasme*.  
     "    *Helvetica*.  
     "    *obtusifolia*.  
*Anthericum ramosum*.  
*Aquilegia Alpina*.  
*Arabis Alpina*.  
     "    *pumila*.  
*Arctostaphylos Alpina*.  
     "    *uva-ursi*.  
*Artemisia*, sp. ?  
*Aster Alpinus*.  
*Astrantia major*.  
     "    *minor*.  
*Botrychium lunaria*.  
*Bupleurum ranunculoides*.



- Campanula barbata.*  
     " *linifolia*  
*Carex atrata.*  
     " *ferruginea.*  
     " *fœtida*, (near Schwarenbach).  
     " *nigra.*  
     " *ovalis.*  
*Cerastium alpinum.*  
     " *latifolium*, (on descent of Ghemmi).  
*Circæa Alpina*, (Kandersteg).  
*Cotoneaster tomentosa.*  
     " *vulgaris* (Kandersteg).  
*Crocus vernus.*  
*Cystopteris Alpina.*  
     " *dentata.*  
*Dianthus atrorubens.*  
*Digitalis grandiflora.*  
     " *lutea.*  
*Epilobium rosmarinifolium*, (Kandersteg).  
*Erica carnea.*  
*Eriophorum Alpinum.*  
*Euphrasia Alpina.*  
*Galium Helveticum.*  
*Gentiana acaulis.*  
     " *Bavarica.*  
     " *ciliata.*  
     " *glacialis*, (Schwarenbach).  
     " *nivalis.*  
     " *verna.*  
*Geum montanum.*  
     " *reptans*, (near the Daubensee).  
*Hedysarum obscurum.*  
*Juncus Jacquini.*  
     " *triglumis.*  
*Linum tenuifolium*, (near Leuk).  
*Lycopodium selago.*  
     " *selaginoides.*  
*Myosotis Alpestris.*  
*Nigritella angustifolia*, (*Orchis nigra*).  
*Oxytropis montana.*  
     " *Uralensis.*  
*Pedicularis adscendens.*  
     " *foliosa*, (near Kandersteg).  
     " *verticillata.*

- Phyteuma hemisphæricum*.  
 „ *orbiculare*.  
*Polypodium phegopteris*.  
*Polystichum lonchitis*.  
*Potentilla aurea*.  
 „ *minima*.  
*Primula farinosa*.  
 „ *villosa*.  
*Rhamnus Alpinus*.  
 „ *pumilus*.  
*Rubus saxatilis*, (*Æschinensee*).  
*Salix herbacea*.  
 „ *reticulata*.  
 „ *retusa*.  
*Saxifraga androsacea*.  
 „ *aspera*.  
 „ *aizoides*.  
 „ *cæsia*.  
 „ *muscoides*.  
 „ *oppositifolia*.  
 „ *stellaris*.  
*Sedum atratum*.  
 „ *dasyphyllum*.  
*Silene acaulis*.  
 „ *quadridentata*, (near *Kandersteg*).  
 „ *rupestris*.  
*Soldanella Alpina*.  
*Tetragonolobus siliquosus*.  
*Trifolium Alpinum*.  
*Valeriana montana*.  
*Veronica Alpina*.  
 „ *aphylla*.  
 „ *bellidioides*.  
 „ *Teucrium*, (near *Daubensee*).  
*Viola calcarata*.

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 ZERMATT.

- Androsace carnea*.  
 „ *glacialis*.  
 „ *imbricata*, (rare).  
 „ *obtusifolia*.

*Androsace Pennina*, or *glacialis*, (near the summit of the Hochthäligrat).

*Anemone Alpina*.

„ *baldensis*.

„ *Halleri*.

„ *sulphurea*.

„ *vernalis*.

*Anthericum liliago*.

*Aquilegia Alpina*, (rare).

„ *atrata*, (Valley of St. Nicholas).

*Aronica scorpioides*.

*Arnica montana*.

*Artemisia glacialis*.

„ *lanata*.

*Astragalus Monspessulanus*.

„ *pseudo-tragacantha*.

*Bupleurum graminifolium*.

„ *ranunculoides*.

„ *stellatum*.

*Campanula barbata*.

„ *cenisia*.

*Colchicum Alpinum*.

*Cotoneaster vulgaris*, (Valley of St. Nicholas).

*Chrysanthemum Alpinum*.

*Daphne mezereum*, (large quantities in the Valley of St. Nicholas).

*Draba aizoides*.

„ *tomentosa*.

*Erysimum Helveticum*.

*Gentiana acaulis*.

„ *amarella*.

„ *brachyphylla*.

„ *Bavarica*.

„ *campestris*.

„ *Germanica*.

„ *glacialis*, (the *tenella* of some).

„ *imbricata*.

„ *lutea*.

„ *nivalis*.

„ *pumila*.

„ *purpurea*.

„ *utriculosa*.

„ *verna*.

*Globularia cordifolia*.

„ *vulgaris*.

- Gregoria vitaliana*, (very rare).  
*Hepatica triloba*, (with variety *alba*, below Zermatt, where the last bridge crosses the river.)  
*Hutchinsia rotundifolia*.  
*Lactuca perennis*.  
*Leontopodium Alpinum*.  
*Lichen rangiferinus*, (reindeer moss).  
*Lilium martagon*, (Valley of St. Nicholas).  
*Linaria Alpina*.  
*Lychnis Alpina*, (Riffelberg).  
*Myosotis nana*, (*Eritrichum nanum*—very rare).  
     *rupicola*.  
*Nigritella angustifolia*, (*Orchis nigra*).  
*Onosma montanum*, (below Stalden).  
*Oxytropis montana*.  
     *Uralensis*.  
*Pedicularis comosa*.  
     *rostrata*.  
*Phyteuma betonicæfolium*.  
     *hemisphæricum*.  
*Pinguicula Alpina*.  
*Pinus cembra*, (a forest of these trees lies between Zermatt and the Zmutt glacier. The kernel of the fruit is used as dessert).  
*Primula farinosa*, (in vast quantities on boggy hill-side near the Findelen glacier).  
     *longiflora*, (very rare).  
     *viscosa*.  
*Ranunculus Alpestris*, (Findelen Glacier).  
     *glacialis*.  
     *Pyrenæus*.  
     *rutifolius*.  
*Rhamnus Alpinus*.  
     *pumilus*.  
*Saxifraga androsacea*, (the marmot is extremely fond of feeding on the flower-stalk and seed-vessels of this plant, so that it is seldom found without these being nibbled off).  
     *oppositifolia*.  
*Sempervivum arachnoideum*.  
     *montanum*.  
*Senecio incanus*.  
     *uniflorus*.  
*Silene acaulis*.

*Stipa pennata*, (below Zermatt, where the last bridge crosses the river).

*Thlaspi Alpestris*.

*Trifolium Alpinum*.

*Trollius Europæus*.

*Veronica Alpina*.

„ *bellidioides*.

*Viola pinnata*, (very rare).

[The neighbourhood of Zermatt is one of the very richest in Alpine botanical rareties.

The ancient moraine of the Findelen glacier abounds in many rare plants; also the lower range of the Untere Rothhorn].

## COL DE BALME

*Alchemilla vulgaris*, (very fine).

*Allium fallax*.

*Anemone Alpina*.

„ *sulphurea*.

*Aster Alpinus*.

*Bulbocodium vernum*.

*Campanula barbata*.

*Cerastium Alpinum*.

*Chrysanthemum Alpinum*.

*Dianthus sylvestris*.

*Draba aizoides*.

*Erythronium dens-canis*.

*Galeopsis ladanum*.

*Gentiana acaulis*.

„ *Alpina*.

„ *Bavarica*.

„ *lutea*.

„ *nivalis*.

„ *purpurea*.

„ *verna*.

*Geum montanum*.

*Hedysarum obscurum*.

*Hieracium aurantiacum*.

*Linaria Alpina*.

*Ornithogalum fistulosum*.

*Orchis albida*.  
*Pedicularis comosa*.  
*Phaca astragalina*.  
*Polygonum viviparum*.  
*Ranunculus glacialis*.  
*Rosa Alpina*.  
*Salix herbacea*.  
     „ *reticulata*.  
*Saxifraga androsacea*.  
     „ *cotyledon*.  
     „ *oppositifolia*.  
*Scabiosa columbaria*.  
*Silene acaulis*.  
*Teucrium montanum*.  
*Thymus Alpinus*.  
*Valeriana montana*.  
*Veronica Alpina*.  
     “ *bellidioides*.  
*Viola biflora*.  
     „ *palustris*.

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### CHAMOUNI.

*Allosurus crispus*.  
*Asplenium Germanicum*.  
     „ *Halleri*, (near Cluses).  
     „ *septentrionale*.  
     „ *viride*.  
*Astrantia minor*, (said to give the peculiar flavour to the Chamouni honey; but this is very questionable).  
*Asarum Europæum*, (between Cluses and Bonneville).  
*Azalea procumbens*.  
*Botrychium lunaria*, (the Charmoz and the Couvercle).  
     „ *rutifolium*, (fir woods in the meadows towards the source of the Arveiron).  
*Bupleurum stellatum*, (Charmoz and Couvercle).  
*Campanula barbata*.  
     „ *pusilla*.  
*Convallaria bifolia*, (woods between Chamouni and the Montanvert).  
     „ *polygonata*, (rocks at the back of the hotel at Servoz).

- Cyathea regia*.  
*Cystopteris Alpina*, (La Flegère).  
*Epilobium rosmarinifolium*.  
*Erigeron Alpinum*.  
*Erinus Alpinus*.  
*Gentiana acaulis*.  
    „ *punctata*.  
    „ *purpurea*.  
    „ *verna*.  
*Geum montanum*.  
*Linaria Alpina*.  
*Lloydia serotina*.  
*Luzula lutea*.  
    „ *nivea*, (woods near the Montanvert).  
*Lycopodium Helveticum*.  
*Myosotis Alpestris*.  
*Nigritella angustifolia*, (*Orchis nigra*).  
*Polypodium dryopteris*.  
    „ *Rhæticum*.  
*Potentilla Alpestris*.  
    „ *aurea*.  
    „ *frigida*.  
*Primula viscosa*.  
*Pyrola minor*.  
    „ *uniflora*, (woods in the meadows near the source  
        of the Arveiron).  
*Ranunculus Alpestris*.  
    „ *glacialis*.  
*Rhinanthus glaber*.  
*Rhododendron ferrugineum*, (commonly, but erroneously,  
    called the Alpine rose).  
*Rosa Alpina*, (Couvercle).  
*Saxifraga bryoides*.  
    „ *Bucklandi*, (rocks between Chamouni, and the  
        Montanvert).  
*Trifolium Alpinum*.  
    „ *montanum*.  
*Tussilago Alpina*.  
*Veronica Alpina*.  
    „ *bellidioides*.  
*Viola biflora*.  
    „ *calcarata*.  
*Woodsia hyperborea*.

## MISCELLANEOUS.

[The following plants are thought worth mentioning in connection with localities where they are found, or grow freely.]

*Adiantum capillus-Veneris*, (Simplon, below Isella).

*Arctostaphylos uva-ursi*, (Valley of Saas).

*Artemisia glacialis*, (Fee-alp).

„ *nana*, (moraine of Allelein glacier, below the Mattmarksee).

*Asplenium Germanicum*, (La Burca, in the Val Anzasca).

*Cyclamen Europæum*, (very abundant between Cluses and Maglan).

*Gentiana asclepiadea*, (ascent from Saas to valley of Fée).

*Gentiana cruciata*, (just below St. Remy).

|                     |                                                                                                   |
|---------------------|---------------------------------------------------------------------------------------------------|
| „ <i>lutea</i> ,    | } (abundant on the Monte Moro.<br>From these two Gentians, the “Eau<br>de Gentien” is distilled). |
| „ <i>purpurea</i> , |                                                                                                   |

*Helianthemum fumanum*, (between Val Tournanche and Chatillon).

*Impatiens noli me tangere*, (Val Anzasca.)

*Lilium bulbiferum*, (Simplon Pass).

*Melica ciliata*, (on dry rocks near Visp).

*Myosotis cæspitosa*, (above the Mattmarksee, near the Allelein Glacier).

*Ononis natrix*, (Val d'Aosta).

*Pedicularis atrorubens*, (Pass of St. Théodule).

*Rhodiola rosea*, (a little below the Mattmarksee, in the Valley of Saas).

*Rubus chamæmorus*, (Monte Moro).

*Saxifraga cotyledon*, (extraordinarily fine on the Simplon; also on the rocks in the Val Anzasca).

*Sedum atratum*, (Valley of Saas, just below the Mattmarksee).

*Senecio incanus*, *Linn*, (*Jacobæa Alpina pumila*, *Бокк*; Monte Moro; Buet, north side, near the top).

*Silene acaulis*, (Monte Moro).

*Teucrium marum*, (between Val Tournanche and Chatillon).



## II.

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### HINTS FOR PEDESTRIANS.

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So lang' ich mich noch frisch auf meinen Beinen fühle  
Genügt mir dieser Knotenstock.  
Was hilft's, dass man den Weg verkürzt!  
Im Labyrinth der Thäler hinzuschleichen,  
Dann diesen Felsen zu ersteigen,  
Von dem der Quell sich ewig sprudelnd stürzt,  
Dass ist die Lust, die solche Pfade würtzt!

GOETHE.

Except this knotty staff, I nought require,  
I still am fresh upon my legs. Beside,  
What boots it to abridge a pleasant way?  
Along the labyrinth of these vales to creep.  
Thence scale these rocks, whence, in eternal spray,  
Adown the cliffs the silv'ry torrents leap—  
Such is the joy that seasons paths like these!

TR. (MISS A. SWANWICK).

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SWITZERLAND is pre-eminently the country for the pedestrian. It is so easily reached, the expeditions lie within so moderate a compass, the accommodation, for a mountainous country, is so good, the scenery so varied and so beautiful, the air so pure, that it seems a country specially marked out for this purpose, as well as to minister to the most refined tastes, and the purest pleasures in which man can indulge.

Notwithstanding the great cost of a land journey of some seven or eight hundred miles, a trip of six weeks to Switzerland is

a cheaper luxury than a journey of the same duration within British waters; and the recompense is unquestionably greater, not only from the unapproachable magnificence of Swiss scenery, but from the thorough change of all habits and associations, which can only be secured by visiting a foreign land.\*

As a general principle, applicable to all countries, it is not good policy to attempt, in the same tour, to visit a round of cities, and to wander among the mountains. The two kinds of pleasure do not suit well together. They require different frames of mind, and different states of body. For one, a comprehensive wardrobe and a certain stock of materials for in-door occupation must be taken. You cannot dress in cities, as you may do among the mountains; you would be singular, and attract an unpleasant degree of attention; and you cannot be always in the open air. For a walking tour in Switzerland, you can hardly take too little baggage. The most particular of your countrymen cannot help relaxing his notions of propriety, when he gets beneath the shadow of Monte Rosa or the Jungfrau; and however shabby, soiled or torn your clothes may be, you will find others in the same predicament as yourself, and you need not fear that your flannels and shepherd's-plaid shooting-coat will exclude you from the company of your better dressed neighbours at the table-d'hôte, or in the salon.

The first necessary is a light, durable, waterproof knapsack. They are now made in England far better than they used to be, and an English knapsack will probably prove much more durable than one made abroad; still they are often too cumbersome and heavy, and are furnished with too many strings and straps. The

\* A journey of six or seven weeks in Switzerland need not cost more than 11s. or 12s. a day, including the expense of the long land journey both ways. When H. and I travelled together in 1852; we were out nine weeks, one week of which was passed in Paris, where the expenditure was, of course, much above the average. We spent no small sum in guides and carriages, and though economical, stinted ourselves in nothing. The trip cost us less than £40 each, everything included. I ought to mention that we travelled third class, much of the way; and I doubt whether it is possible now to travel abroad so cheaply as it was a few years ago.

best material is either cloth or canvass, water-proofed with a solution of Indian rubber, or light varnished leather; but the former is less heating. A knapsack about fifteen inches long, ten inches broad, and three and a half inches deep, is quite large enough for any reasonable man. On the top should be a couple of light straps, to hold a blouse, plaid, waterproof, or anything of the kind that may be thought desirable, and a stout leather handle, by which to carry the pack when occasion requires. The straps by which it is fastened on the back should be strong, but light; above all, they should be broad enough—a narrow strap cuts the arms and shoulders most uncomfortably. They must not be too long, or the knapsack drops half way down the back, in which position the burden is far more fatiguing than if it were up to the shoulders. A strap across the breast, such as our soldiers used to wear, is a great mistake; it contracts the chest, and interferes materially with the play of the lungs. One of the shoulder straps should end in a ring, and a hook should be sown on to the lower edge of the knapsack, to receive it. The knapsack is thus put on and taken off, without the slightest difficulty. The whole apparatus ought not to weigh above two pounds.

More important even than the knapsack, are the shoes, or boots. They should be old friends, if possible, which are already worn easy; otherwise, a blistered heel is likely to arrest your operations. I was once laid up a whole fortnight, at Sonceboz and Interlaken, in consequence of starting with a new pair of shoes; in the course of a two days' walk through the Munster Thal, my feet were absolutely cut to pieces. Of course, they should be of the best material and workmanship that money can buy; hardly any price is too much for a good pair of easy and serviceable mountain boots. You cannot take a second pair; they weigh more than all the rest of your kit put together—and a failure of boots or shoes is a fatal blow to the pedestrian. The soles should not be less than five-eighths, or three quarters of an inch thick, studded with stout nails—not too thickly, though, else they will make you slip on the ice. The nails should be put in when the shoes are made, not after the leather has become thoroughly dry and hard, or they are apt to come out. Sometimes they are screwed in, and this is the best plan. The upper

leather should be double, over a great part of the foot, and as soft and flexible as leather can be got. I am fond of ankle boots, with elastic spring sides; they save a world of trouble in lacing, and always fit close to the ankle, so as completely to keep out dust, stones, and even snow; for which purpose, they are as useful as gaiters. At the same time, they are not comfortable to sit in, and chill the feet, when not in active exercise, by checking the circulation. My own plan, which I have found very efficacious in keeping the feet in good order, is to change both shoes and socks, the moment the day's work is over, or a long halt come to.

The socks should be woollen, and as thick and soft as can be procured. Scotch wool is an excellent material. Cotton, or a hard twisted wool, will cut the feet to pieces in a long day's walk; and the inconvenience of the warmth of woollen socks is hardly felt, after the first day or two. If the boot be large enough—and it ought to be very easy, as the foot is sure to swell with the heat of exercise—two pair of woollen socks are an almost infallible preventive of blisters. English-made socks generally fit better than Swiss.

Flannel or silk should always been worn next the skin. The rapid changes of temperature, on the glaciers, and in the valleys, render this precaution—always important—of more than ordinary consequence in Switzerland; while the vigorous exertion of climbing often leads to copious perspiration, especially before you get into condition—and then you may suddenly be assailed by a freezing blast, exposure to which, without such a protection, would be, perhaps dangerous, certainly unpleasant. The most comfortable suit for walking in would be coat, waistcoat and trousers of flannel; but, good, stout warm shepherd's plaid, all woollen, is no bad substitute. In any case, however, I strongly advocate the use of flannel trousers—such as are worn at cricket. Their superior comfort cannot be appreciated, till you have walked both in them, and in others of a different material. Both the coat and waistcoat should both be double-breasted—the inconvenience of being sometimes too warm is nothing to that of being too cold, in the High Alps—and should have plenty of pockets. A shooting-coat, with the tails not too long, is the best adapted for walking. A light wide-awake is the best head-gear. It must have strings,

or it will probably be blown away, at the top of some col or summit. I have often found the additional security of a handkerchief tied over the head necessary.

A plaid, or waterproof, is occasionally a great comfort, but often a great inconvenience. In general, I prefer the discomfort of an occasional drenching, to the trouble of carrying the extra weight. Last autumn (1857), however, anticipating from the long continuance of fine weather in June and July that we should have a good deal of uncertain weather in August and September, I took with me, for the first time, a waterproof coat. My surmise proved quite correct. Out of about fifty days, during which I was absent, rain fell on more than twenty (at and near Chamouni). The waterproof was unpleasant to walk in, but it saved me from many a drenching. It was made of waterproofed silk, and weighed only six ounces. The weight of so light a garment is really of very little consequence, and it certainly proved a great comfort to me.

The contents of the knapsack or coat pocket, or both, should not weigh more than from six to eight pounds. This will be found quite heavy enough, in a long day's walk. Two spare shirts, one spare undershirt, and a couple of pocket-handkerchiefs, are a liberal allowance. A change of cloth clothes, excepting, perhaps, a very light pair of trousers, is out of the question. Socks are the only articles of which you must have plenty; five or six pairs are not too many for two months' work. They should be well run at the toes and heels, for they will see service, and it is not the pleasantest thing in the world to have to sit down in an out of the way Swiss village, and mend your own socks, though you must be prepared to do so, if necessary. Several bits of string, of different sizes, a few needles, tapes, buttons, some thread and worsted, some bits of cloth and flannel, to mend your clothes with, a sponge, some soap, a brush and comb, razor and tooth-brush, some oiled silk and lint for hurts, a few simple medicines—for you may be ill, even in the mountains—a small stock of paper, a few wafers, an ink-bottle, a large knife, fitted with corkscrew, gimlet, saw and the like, a light pair of shoes, (an indispensable comfort) a pair of dark spectacles and a dark veil with a hole cut in it, to breathe through, a pair of very warm gloves and muffitees,

and a pair of the lightest oiled-silk gaiters, are pretty nearly everything that you want. One or two very small books may be added, *à discrétion*; and a journal, a blank book for pressing flowers, a thermometer, pocket compass, and small telescope, will materially add to the enjoyment and advantage of the trip.

The foregoing articles are all best procured before starting. There are one or two more, which it saves trouble to get on the spot, when you are about to begin the real expedition. Such are a spirit-flask, a small leathern cup for the pocket, and a coarse, common blouse, which will be a great protection against dust, when travelling along the roads, and will shoot off any light rain or moderate showers; even against heavy rain, it is no mean defence, for an hour or two. The coarser and stiffer it is, the better. For a couple of francs, you may obtain a very stout and serviceable article. A few screws, about three-eighths of an inch long, with large, double-pointed heads, which can be got at Chamouni, but which I have never seen elsewhere,\* are very useful companions. Before entering upon a difficult glacier, they are easily screwed into the boot, by the aid of a bit of wood, which you can hollow out into a kind of socket, to fit the head of the screw; and when you no longer want them, they are as easily taken out again. Three or four in each boot are sufficient—two in the broad part of the sole, and one or two in the heel.

When about to start for any long or difficult glacier pass, plenty of ropes should always form part of the outfit. The ropes best adapted for glacier use are rather thicker than an ordinary window-sash cord, and long enough to allow from ten to fifteen feet between each person and his neighbour. This is a precaution not always sufficiently attended to—especially by the guides of the Monte Rosa district—but it is one of the most necessary, and the most effectual. With a party of four or five, by the proper use of ropes, all danger from concealed crevasses may be eliminated.

The alpenstock is, of course, absolutely indispensable, and, on the more difficult glacier passes, it is a great help to have it long enough. The guides often use very short ones, to save the extra

\* Their use is traditional at Chamouni. Mr. Auldjo mentions them, in the account of his ascent of Mont Blanc, thirty years ago.

weight of a larger pole; but the traveller must remember that his power of dispensing with this kind of assistance will generally fall far short of that of his guides. Six feet is hardly too long for the great expeditions. On many of these, a stout ice-hatchet is also necessary, to cut steps in the ice.

A telescope, a compass, and a book for pressing flowers have been mentioned as pleasant additions to the necessary outfit. Not only is it a source of never failing interest and pleasure to observe the peculiarities, and scan the details of structure, of such lofty crags, glaciers and summits, as you can never attain; to pry into recesses to which nature has denied all approach; to examine geological and physical conformations which can give little information to the unassisted eye; to watch from afar the jealous movements of the chamois, or the quaint and fearful habits of the marmot—but the aid of the telescope is not seldom of more essential service, in enabling you to tell, from a long distance, where you must attempt a difficult passage, or scale an almost impassable arête; thus saving you a world of labour in wandering to and fro, when you are actually involved in the difficulties, and, from their very proximity, unable to discern as clearly as you may from a distance, in what quarter or direction they may be most successfully assailed. Nor is the pocket-compass a useless auxiliary. It is true, you seldom venture into situations of extreme difficulty without better guides than the compass: but, in a fog or a storm, the best guide may occasionally be at fault; and, if not for purposes of safety, it is always useful for those of interest and enjoyment. With a good map and a compass, you may generally make out every summit, or other object of consequence in the view. Without it, it is not always easy for the most careful and experienced eye to avoid making mistakes, owing to the extreme diversity of appearance which the most familiar peaks and rocks present, according to the direction from which they are beheld or approached.

The book for pressing flowers affords the means of bringing home, with little trouble, a most graceful and agreeable memento of the scenes which have been visited. The mistake commonly made in pressing flowers is to take far too much trouble about them. A blank book of common paper, not glazed, with tolerably

stiff sides and a clasp, or with a piece of string tied round it, is all that is wanted. The book may be carried in the pocket, and no care need be taken to prevent its knocking about. It will be at hand, whenever a rare specimen, or a lovely colour, tempts the traveller. The flower may be immediately placed between the leaves, wherever there may be room for it, and the book tied up and slipped in the pocket again. The process is no interruption, even on the longest and most difficult marches. In the evenings, and while the traveller is waiting for meals, or at any other odd times of leisure, the flowers which are dry enough may be secured in their places, by stitching them in—a needle and thread being always kept in the book—and their names and localities written underneath.

Most of them keep their colour far better, for not being exposed to so much pressure as is usually applied, and to the absorbing action of the blotting paper,\* which often, especially under great pressure, takes up a large part of the colouring matter of the flower; and flowers dried thus look more natural, and unconstrained, if I may use such an expression, than those which have been dried in the ordinary way. Some of the extremely thin and delicate flowers—such as the *cistuses*—suffer, no doubt, from want of extreme precaution, but most gain by its absence. Flowers gathered at a height of ten or twelve thousand feet, it would be difficult to preserve at all, in any other way, and those persons, at any rate, whose object is rather picturesque than botanical will find this suggestion useful. It is no small advantage to multiply the means of constant and agreeable occupation, even among the Alps; and I have found the flowers and the journal invaluable companions, on many a rainy day, at such places as La Burca, Saas or St. Rémy.

With rare exceptions, such as in crossing the Splügen or the Simplon, it is bad policy to walk where you can ride in carriages. Even as a matter of economy, it is questionable; at least, where

\* I took with me, last year (1857), a book made of soft absorbent paper—some which had been strongly recommended to me—and the consequence has been that my collection for that year is the worst preserved, and the least satisfactory altogether, that I have ever made.



the object is rather to see as much, and as well, as possible, than to spend as much time as possible. For three or four persons, there is very little difference between the cost of walking and that of riding, a given distance along a carriage road, while the dust knocks the feet to pieces.

A good walker seldom gains anything by taking a horse or a mule; neither animal can go so fast, or so far, as an active man can walk. The rider cannot stoop to pick up this flower or that stone, or turn aside to examine this or that little object of curiosity; in the driver, he is generally encumbered with an ignorant and incurious attendant; he cannot make his halts when and where he likes; and it is seldom that he can keep his faculties of observation or enjoyment alive and awake, under the monotonous motion of riding at a slow foot-pace, as he can during the pleasant exertion of walking. The expense of mules and horses in the Alps is great, and unless you take them for days together, and contrive to bring them back to the point of starting, there is always a heavy demand for back fare.

There are a great many passes in Switzerland which it is perfectly safe, during the summer season, in almost all weathers, to cross without a guide. Such, amongst others, are the Col de Balme, the Tête Noire, the Col de Vosa, the great St. Bernard, the Ghemini and the Grimsel; over most of which, a guide is about as much needed as on the Malvern Hills or the Wrekin. There are some, again, which, though not so easy as these, may yet be safely crossed, in fine weather, by an experienced pedestrian, without a guide, or trusting, at all events, to the shepherds and cattle-tenders he may find in the mountains; but few of the considerable glacier passes ought to be taken without good guides, except by the most practised and skilful mountaineers, and then, only in parties of not less than three. In 1853, a gentleman persisted, in spite of all possible expostulation and warning, in forcing his way across the Col d'Erin by himself; but it was a wild and unjustifiable attempt, though it succeeded, and ought never to be imitated. The subject of glaciers and their phenomena is a difficult and complicated one; and it is not a slight, or a theoretical, acquaintance with them that will render even an observant man competent to trust himself alone amongst their

wonders and their perils. There are sometimes, also, dangers peculiar to individual glaciers, and of which a stranger cannot possibly, at first sight, detect the existence.

The pleasantest plan for a pedestrian is to secure a first-rate guide at starting, and to keep him during the whole tour. He is not so expensive a luxury as, at first sight, might be imagined. You pay him from five to seven francs a day, according to what sort of a journey you are going to take; and there are no extras, except that on a long glacier pass, or wherever you take your provisions with you, you provide for him as well as yourself. He asks, and he expects, no more than you have agreed upon with him, though, probably, if you have been together for a month, you will spontaneously make him a little present, on parting; and, of course, you always pay him for the number of days it will take him to get home, after he leaves you. When you ride, he will probably save you more than his day's pay, in the hire of carriages; for he knows the exact price which ought to be paid for every journey, and has means of inquiring after return-carriages and the like, which you cannot have. When you are going to cross a glacier pass which requires two or more guides, he will be a great saving to you, as he still receives only his day's pay, whereas the other guide or guides, who go only for that "course," will demand twice or three times as much.

A few words may not be out of place, as to the accommodation likely to be met with in the High Alps. Of the larger hotels, I have not much to say. They are generally good, often excellent, and far cheaper than our own. My remarks apply chiefly to the humbler class of inns, with which the pedestrian in the High Alps is more particularly concerned. Generally speaking, those North of the main chain of the Alps are better than those on the South. Of the latter, my principal experience has been in the valleys of Piedmont, where there is a considerable tendency both to dirt and to cheating. An Englishman is generally looked upon as a fat prize, not to be captured every day, and to be made the most of, when he does happen to fall into the net. The bill is generally made out according to the presumed inexperience, or facility of the person to whom it is to be presented, and I have known the same traveller charged, at the same inn, according to

two perfectly different scales, on occasions within a very short time of one another. Recourse is had to every improbable plan, to swell the amount. Sometimes, every single article at a meal, down to the salt, will be put down separately and the total brought up to something enormous. Sometimes, a more expensive wine will be purposely substituted for what you have ordered, and then an attempt made, at all events, to charge for it in the bill. Sometimes, your guide's meal will be inserted, at a price far above what would be charged to himself. In fact, there is no device which will not be tried, and the only way of meeting the trick is to put down what you think a fair price for what you have had, and steadily to refuse to pay more. It might be supposed that the altercation would lead to incivility and unpleasantness, but, on the contrary, you will get on a great deal better with mine host, who respects you all the more for beating him down, and, after accepting half or two-thirds of his demand, he will overload you with civilities which he showed no inclination to bestow upon you before. There is probably no country in the world like Italy, in this respect, and, however fastidious the traveller may be, when he begins his journey, he will at length be convinced that there is nothing for it, but to make a stand, unless he chooses to be cheated from morning till night.

In the matter of carriages, the innkeepers of these parts are utterly and absolutely without scruple. From Aosta to St. Rémy, I have been charged, under precisely similar circumstances, once twenty francs, once fifteen francs, and once twelve francs. From Chatillon, we were forwarded in a "*belle calèche*," dirtier than any other I ever saw, to Aosta, with a horse that had been bled, as we afterwards ascertained, the day before, and which was obliged to walk most of the way, at a charge of sixteen francs—the real fare, for a respectable vehicle, being ten or twelve francs. For a carriage from Ivrea to Aosta, I knew a hundred and twenty francs extorted from an inexperienced traveller; whereas, from Arona to Aosta, double the distance—where, by the way, there is a landlord who forms a striking exception to the general rule—the regular charge is but a hundred and ten francs. I have never known anything so bad as this, on the north side of the great

chain; but Switzerland, to do her justice, is not very far behind her sister, Piedmont. Many of the classes with which the traveller comes more particularly in contact, are like the three daughters of the horse-leech, always crying, "give, give." The number of beggars in the Oberland, of all ages, and of both sexes, is quite fearful. On the beautiful coins of the Swiss confederation, Helvetia is represented as stretching forth her arm over her magnificent domains; in the background, the fairest, at once, and the most majestic of her peaks, the scarce trodden Jungfrau. It would be no unapt emblem of the character of a great part of the nation, were she pictured as holding out her clutching fingers, in the attitude of greedy and importunate mendicity.

The spirit that animates the beggars of the Oberland too often shows itself, under another form, in the attempts at extortion by which the innkeeper seeks to increase his legitimate earnings. To multiply instances would be out of place; but the following cases betray a shamelessness of imposition which make them worth relating. Owing to an accident, I was obliged to remain three days, a close prisoner to the sofa, at the comfortable inn at Sonceboz, in the Münster Thal. To the attention and kindness I received from the servants, I can bear willing and grateful testimony; but the master I never saw, till the time for departure arrived. In the course of my three days' detention at a place at which diligences are arriving and halting many times in the day, I unavoidably saw many a meal paid for, and from this circumstance, as well as from entering into conversation with travellers who passed through, became well acquainted with the prices regularly charged for every meal. What was my surprise, when the bill was brought for myself and friends, to find that from half a franc to a franc was added on to each meal, for each person. I sent for the landlord, who at once admitted the fact, adding, that they always charged the English on a higher scale. Did they eat more? By no means; but they could afford to pay more; "and," said he, "be content, you have done very well; you came on foot, and I have charged you so much; had you come in a carriage, the charge would have been higher, for every meal."\*

\* The last time I was at Sonceboz was in 1854. The incident might very well have occurred then.

There is no colouring in this statement. It is a literally correct report of what actually passed, at a large and well-conducted inn. The second instance shall relate to an establishment of a different class. Many travellers have partaken of goats' milk, of bread and cheese, and sour wine, at the chalet of Schwarenbach, near the top of the Ghemmi pass; few, probably, have slept there; I have, and can speak of the accommodation as better than might be expected. There are a few fleas, it is true; but where so many goats are stalled under the house, this must be expected, and I make no complaint of that. Our party (three in number) were very tolerably housed and fed; the bill, however, was considerably higher than it would have been at a first-class hotel at Geneva or Berne, and included an item of two francs "pour le cirage." It should be borne in mind, what sort of a thing "blackening" boots is, among the mountains, in Switzerland. The process is this—a piece of lard or fat is put in a frying-pan, and melted over the fire, and the shoe having been slightly and superficially wiped with a dirty cloth, the liquid grease is laid on (not rubbed in) with the hand, or, perhaps, with a feather, or a bit of stick, and left to condense upon the leather. The shoe is then fit for a gentleman to wear, and for this luxury, the modest sum of two francs for three persons was asked. It is needless to add that this, together with some other ingenious items, was disallowed, and the innkeeper still most liberally remunerated.

It must be remembered, however—and the remark applies to any inns that I have mentioned disparagingly in the foregoing pages—that many of the smaller inns, especially those at great heights, change hands so often, that a censure which is well deserved, one year, may be wholly inapplicable, the next. For instance, in the former edition, I have spoken with some severity of the inn at the Col de Balme. In 1857, it was clean, hospitable and moderate, the fare good, and the landlord most obliging and attentive. Indeed, it is this constant change of landlords that makes these inns generally so indifferent. No man, except my enthusiastic friend of the St. Théodule, chooses, as a matter of preference, to pass the whole season in a bleak and desolate spot, where he must undergo much discomfort and privation; his object is, therefore, to make all he can of the speculation; if

possible, to realize enough to enable him to take an inn in a better situation, the next year. When, therefore, I have given an inn a bad character in 1852, 1853, or 1854, it is not necessarily to be inferred, that such a character is still deserved.

The instances just mentioned illustrate the kind of imposition the traveller must be prepared for. Away from the main stopping-places, he is never safe from it. The best that can be said is, that it is entirely at his own option whether he submits to it or not. There are two ways in which he can get along with comfort—one is, uniformly to pay whatever is asked; the other, uniformly to resist imposition. It is hard to say which plan gives least trouble, or secures the best attention. The choice must lie with each individual traveller. There is this difference, however, that in the one case he affords, as far as opportunity allows him, a direct and tangible bonus to knavery and cheating; in the other, he discharges a public duty, and facilitates the progress of every subsequent traveller.

It must not be supposed that I mean to represent this system as universal; but it is so widely extended, and this kind of dishonesty is so common, in the less frequented parts of those districts to which tourists flock—where the thirst for gain has been whetted, but is not kept in check by competition and publicity, that there is an unpleasant consciousness of its continual probability. Where the country innkeeper is an honest man, he is generally very attentive and hospitable. At Saas, at La Burca, at Frutigen, at St. Nicholas, I have met with hearty and unaffected kindness, which I shall not readily forget, and which made it difficult to believe that one was not enjoying the private hospitality of the host; and the experience of every pedestrian will probably suggest similar instances, within his own recollection. I say, of every *pedestrian*, for it is the traveller on foot who comes principally in the way of needing, and of receiving, this kind of attention; but unfortunately it cannot be reckoned upon, *à priori*.

The traveller in any of the remote valleys of Switzerland must, of course, be prepared for very homely accommodation and indifferent fare. Indeed, amongst the mountains, a forty-horse power of digestion is an invaluable qualification. There are many parts, such as the more unfrequented valleys about Monte Rosa,

where hardly anything can be got to eat, which, at home, we should not cautiously eschew. Sour bread, acid wine, meats stewed in vinegar or oil, or boiled to a tasteless rag, must be the staple of your food.

This, however, is a small matter, compared with the love of garlic which prevails. You are offered eggs and bacon; nothing can sound more promising, but they prove to have been fried in a garlicky pan. The omelette is seasoned with the same flavour; the bread is difficult to impregnate with it, but the knife with which you cut it has just been used for chopping garlic. The meat you take up with you to the mountain top, and which looks so tempting at a height of some twelve or thirteen thousand feet, is no sooner in your mouth, than you are obliged to evict it, to escape the overpowering relish of the garlic, with which it was boiled, or which was scraped over it as it roasted. Even boiled eggs are hardly safe.

This drawback, however, is not in reality so formidable as it might, at first sight, appear, since the rude health enjoyed among the mountains enables you to digest, without inconvenience, food that you would shudder at in England. "Fames optimum jus," is a truth you illustrate, every hour of your life.

A more serious evil is, the difficulty of finding a good bed. I say nothing of its being hard, knotty, or small; the man who cannot put up with such little discomforts is not fit to travel; but it is often not only dirty, but what is worse, damp. The hardest pedestrian is liable, in this way, to catch a cold which may entail very serious consequences. There are parts, again, where it is hopeless to expect entirely to get rid of fleas, until you have left the district. The heavier artillery you seldom meet with in Switzerland, unless unhappily driven to a second-rate inn in a large town, where you may suffer greatly from them. But in the north of Italy, and in the Swiss valleys bordering upon Italy, the fleas are very plentiful and hungry, and constitute a formidable race. They are larger and more irritating than the British animal, and cause a good deal of real annoyance. The most terrible being of his order is the chalet-flea, found almost universally in the chalets—a blood-sucker *sui generis*: so greedy, so insatiable and so tenacious is he. If it is desirable to shorten a long expe-

dition, by sleeping at a chalet on the route, always try, if possible, to find one which has a detached barn, or "grange." The hay in this is almost always clean, and, when skilfully arranged, affords a warm and excellent couch—and tying your handkerchief over your head, to guard against the wind that comes whistling through the crannies of the loose stone walls, and rolling yourself well down into the hay, you may sleep as softly and sweetly as on a bed of down. But in the chalet itself, it is another story—one, over whose horrors we prefer to draw the veil of silence, and leave the details to the imagination of the reader. He may indulge his fancy freely. His conception will certainly fall short of the reality.

Nothing can be a greater mistake, than to suppose that, because imposition is to be resolutely withstood, it is either necessary or advisable to assume an air of mistrust and defiance. The experienced traveller knows that, with the exception, perhaps, of a gentle hint or two about the bougies, it is quite time to remonstrate, when the bill comes, if the charges are not fair. By anticipating, you may suggest, imposition, and as "forewarned is forearmed," where the disposition to cheat exists, it will often be much more skilfully carried into effect, by a man who knows that his bill is to undergo taxation. At all events, it is better policy to go on smoothly, as long as possible. It takes some amount of practice and experience to know exactly when and where to make a stand. Nothing is more injudicious or improper, than to make an indiscriminating attack upon inn-keepers and their bills, wherever the charges seem a little high, without reference to circumstance or place. It is reasonable that you should pay a good deal more at the top of the Faulhorn, or at the Col de Balme, than for the same accommodation at Grindelwald or Chamouni. No man ought to grumble at being asked a moderate sum for fire, when every stick of fuel has to be transported, two or three leagues, on the backs of mules or horses. In places of this kind, it is quite fair that the price paid should be such as, in the plains, would secure very superior accommodation; but when the same indulgence is claimed for very inferior inns, merely because they are situated in a high valley, where, nevertheless, flocks, herds, corn and wood are all the produce of the neighbourhood, and the



simple fare supplied is procured quite as easily as at lower elevations, the demand is an imposition, and is most properly resisted. So, if the traveller has conclusive proof that he is charged fifty per cent. higher than his neighbour, because he comes from the opposite side of the British Channel—this is an extortion which will almost justify a violent outbreak. He is always right, again, in refusing to pay for what he has not had, or for what is always included in the charge for something else, for which he pays liberally. If “salt” is made an item in the dinner bill, the man who pays for it, though it be but five centimes, does a public wrong. Where bed-rooms are fairly charged, no one ought to pay for a bougie; nor for “le cirage,” when his boots have been coarsely tallowed over; nor for “calling,” which is a part of the service of the house; nor for “a bath,” when he has had a few quarts of hot water for his feet. But if a notice is fairly posted up, that if he takes the blankets from his bed, to cover his shivering form while watching a sunrise at the Faulhorn, he will be expected to pay something extra for the wear and tear, and abnormal use of the article, it is hardly fair for him to object to half a franc in his bill for the accommodation. If his clothes have been so hopelessly drenched, that it has been necessary to keep up a fire all night, to dry them, it is not unreasonable that a small charge should make its appearance in his reckoning, even though it should exceed the actual cost of the fuel.

It is almost superfluous to observe, that the pleasure of the traveller will depend very much upon the disposition in which he meets such inconveniences as we have glanced at. To him who encounters them in a cheerful spirit, and with unruffled temper, they will seem but small, compared with the pleasures he is continually enjoying, and, when past, they will afford many a smile in the retrospect. If, on the other hand, they are made the worst of, it is quite possible that the pleasure of the trip may be effectually marred, so that it shall seem one series of continual annoyances and discomforts, from beginning to end. “The British grumbler” is much better at home—for he not only makes himself, but all those around him, uncomfortable, unless they are wise enough only to laugh at the expressions of his spleen. Half the inconveniences of travel melt away before the sunshine of a little good

humour and cheerfulness. The counsel given, long ago, to a gentleman on his travels may still be taken to heart, at the present day, as profitably as ever :—

“Tu, quamcunque Deus tibi fortunaverit horam,  
Grata sume manu ;           \*           \*           \*  
Ut quocunque loco fueris, vixisse libenter  
Te dicas : nam si ratio et prudentia curas,  
Non locus effusi late maris arbiter, aufert ;  
Cœlum, non animum, mutant qui trans mare currunt.”

## III.

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THE ANCIENT GLACIERS OF NORTH WALES.
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*The following observations originally appeared in  
the Saturday Review.*

A huge block of stone, lying high above the road through the Vale of Llanberris, near the top of the pass, has long attracted the notice of even the least observant travellers. It is perched on the edge of a rock a few hundred feet above the bottom of the valley, on its northern flank—that is to say, on the left hand of the traveller who is ascending the pass. It is from fifteen to twenty feet long, and six or seven feet high, sharp and angular as on the first day that it was detached from the parent mass. It rests on a face of rock which, for a few feet, slopes sharply towards the valley beneath, and then ends in a perpendicular face of rock; and it is so lightly poised on its narrow base, that a finger's touch would seem sufficient to dislodge it from its precarious position. The thought involuntarily occurs, how came it there? What agency could have transported it thither without rounding or breaking off a single corner, and left it where it stands, with so cautious and gentle a hand that it rests securely not at the edge, but on the side, of a steep and smooth incline?

It is utterly impossible that it could have rolled thither; for, if so, the momentum which carried it to its present position must have precipitated it down the cliffs below. In all probability, any force which could have moved it three inches from the top of the incline on which it rests would have been sufficient to send it crashing down to the bottom of the valley. Hardly any traveller can have passed up the Vale—from one part of which this rock forms a very conspicuous object—without having had some such train of thought suggested to his mind. Those, however, who are aware that the existence of a great glacier in this valley at some former period is a geological certainty, will be at no loss to recognise in this rock a most remarkable and most characteristic specimen of those transported blocks whose occurrence in various parts of Europe, at great distances from the parent formations, was so long a mystery to the philosophic inquirer, but which are now recognised as among the surest indications of glacial action.

If the passer-by should take the trouble to climb from the high-road to the block we have been describing, he will see that it is only one—although much the largest—of a great number of similar blocks, which are deposited in the same manner on the sides and at the edges of the sloping and precipitous faces of rock which flank the northern side of the Vale of Llanberis. The greater part of these extend in a well marked and tolerably regular line, and at elevations varying from 300 to 400 feet above the course of the stream, for perhaps a mile further down the valley—until, in fact, its sides become too steep and precipitous to admit of such deposits being made. If he clambers along this side of the valley, and examines the faces of rock around and beneath these blocks he will find many of them—especially such as have not been exposed to the action of the water-courses which trickle down every here and there into the stream below—deeply scored with the characteristic striæ of glacier action. If he now crosses to the opposite or southern side of the valley (the flank which lies beneath Snowdon) he will find all the indications of glacier force—the deep notchings of the striæ, the polished and rounded surfaces which Continental geologists term *rochers moutonnés*, and the transported blocks poised in the most critical

manner upon slopes which seem too steep to give them support—still more clearly and unmistakeably exhibited.

The transported blocks and glacier scratches in the Vale of Llanberris are so well known that we simply refer to them to call to the minds of our readers the general aspect of the phenomena which we are about to describe as occurring in other parts of the Snowdon district, where they are not so well known, or so universally ascribed to the action of an extinct system of glaciers. Just at the top of the Vale of Llanberris, there is a hollow in the profile of the ridge which forms its northern boundary. It lies exactly between the cluster of houses called Gorphwysfa on the south, and the lake of Cwm-ffynnen, at the base of the two Glyders, on the north. A few hundred yards to the east or south-east of the lowest part of this hollow, at a distance of not more than three hundred yards from the great block of the Vale of Llanberris, there is a little round knoll of rock which rises by itself above the neighbouring parts of the ridge. It is something like an inverted basin, so that the ground falls away pretty steeply on every side, and the top is nowhere less than fifteen or twenty feet higher than the surrounding parts. Perched on the very top of this knoll, resting on three points of contact at most, is an irregular piece of rock, of a different formation from that upon which it rests, seven or eight feet long, three or four broad and as many high. It has never been subjected to any process of abrasion or rounding, for every corner is perfectly sharp and angular—presenting in this respect a marked contrast to the rock on which it rests, which is round and smooth, and somewhat weatherworn. What could have brought this block to its resting-place? To have rolled thither, it must have rolled some twenty feet up-hill, from whatever direction it had come. The ridge, for many hundreds of yards, on either side of the knoll, rises but gently, and presents an undulating surface, along which a sharp, oblong, irregular block of stone could by no possibility have preserved for any distance a considerable velocity; and between this knoll and the spur of the Glyder Fawr—the only considerable altitude within a mile of the spot—there is a hollow at least 150 feet in depth. But a little below the top of the knoll, on its eastern slope, is a still more remarkable block. It is about the

same size as that which is seated on the summit of the knoll, and similarly sharp and angular, but consists of a coarse conglomerate of a very marked and peculiar kind, in which large round white pebbles, apparently of quartz, are imbedded in a kind of matrix, which looks like a coarse red sandstone. The most incurious person can hardly fail to be struck with the great difference between the character of this rock and the clay-slate upon which it rests. If the observer casts his eye around him, he will be unable to see in any direction traces of a similar geological formation in the neighbouring rocks. A few feet further on, however, he will observe a third angular block of stone, larger than the others, but resting, like them, upon two or three points alone. He can hardly fail to be struck with the fact that these three blocks are in as exact and regular a line as if their places had been laid down by the nicest measurement. They run nearly north-west and south-east—about half a point to the west of north-west and to the east of south-east—that being the general direction of the ridge which descends from the spur of the Glyder Fawr.

If the traveller now remounts to the top of the knoll, he will perceive that the side of the steep descent, towards the hollow mentioned before, is dotted here and there with large blocks of stone resting gently upon the sloping rock, or imbedded in the turf. All these, on examination, will turn out to possess the same sharp and angular character; and all of them suggest the question—Is it possible they could have rolled so far up hill? and were it possible, could they be as sharp and unrounded as they are? As he pursues his way north-west towards the spur of the Glyder, he finds the ridge growing rapidly steeper, but still he sees this regular line of sharp blocks, deposited often on their sharpest edges, and nearly on the edge or back bone of the ridge. As he mounts, they become larger and more frequent, and amongst the higher rocks are the fragments of red conglomerate—until at length, just behind a huge mass of clay-slate of a size which would do credit to any moraine in Switzerland, he comes suddenly upon a block of the conglomerate, fifteen feet long and ten feet high, large enough and overhanging enough to afford him no mean shelter from a Welsh mountain storm. Five minutes'

further climbing in the same direction brings him to a most gratifying sight—a large patch, seventy or eighty yards wide, of the red conglomerate *in situ*—of exactly the same character in every respect as that which he first observed resting on the side of the clay-slate knoll nearly a mile off. Looking back, he will be able to trace distinctly the line of stones by which he has been guided in his ascent. It is so regular that they might almost have been dropped one after the other by a railway train. On each side of the principal line of stones he may observe other though less regular lines, by which he may very nearly map out the exact extent of the ancient moraine to which they belonged. The last deposited blocks are not a hundred feet higher than the outcropping of conglomerate; and he is now standing nearly upon the brink of that huge lake of ice which must have filled up the basin of the Glyder Fawr and the Glyder Fach, and poured out through the opening above the well-known little inn of Pen-y-gwryd into the valley of Gwryd, and terminated in the open space of that wide valley. Many of the rocks on the southern side of that opening, just above the lake which now occupies the bottom of the hollow beneath the two Glyders, present the general appearance of glacier-rounded rocks. But the material is so soft, and therefore so ill adapted for preserving the minuter and more indisputable marks of glacier action, that it would be unsafe to draw conclusions from their configuration, were they not supported by the independent testimony of the old moraine, which, with the exception, perhaps, of the moraine of the great glacier that filled up the whole basin of Snowdon, is the best defined that I have seen in North Wales. The southern side of this hollow—forming the northern flank of the ridge along which lies the moraine of the Glyder—is also of a soft and easily-disrupted stone, and much covered with turf and mould; and accordingly I was unable to find any very distinct marks of striæ. The places where the rock is least covered and has been least exposed to the obliterating action of trickling water, are the places where such indications could not be expected to exist—namely, near the top of the ridge, and on its southern flank, high above the Vale of Llanberris.

It is not easy to say to what system the great block in the Vale

of Llanberris belongs. An attentive examination will show that it lies higher than the well-defined line of deposits which extend along the same side of the valley. Indeed, it is considerably above the level of the actual crest or col of the pass; and there is no precipitous or disintegrated height in its immediate neighbourhood from which it could very well have been detached. Indications appear to us to be not wanting that the great glacier of the Glyder, at some period at all events, rose above the lowest part of the hollow in the ridge towards the Vale of Llanberris, and overlapped the southern flank of that ridge. If so, this block, instead of belonging to the Llanberris glacier proper, is really a contribution from the stores of the Glyder glacier, and was brought down upon its surface from some of the precipitous heights near the outcropping of the red conglomerate. But of this it is difficult at present to speak with confidence.

At the head of the vale of Nant Francon, towering above Lake Ogwen and the high road from Bangor to Capel Curaig, is the sharp and rugged peak called Tryfan—the most precipitous summit and the finest single mountain in North Wales. It is separated by a short, sharp ridge, running nearly north and south, from the range of the two Glyders. Tryfan is an irregular continuation of this ridge, terminating abruptly upon the Bangor road, and forming the western, as a spur of Glyder Fach forms the eastern flank, of the romantic and secluded valley known by the name of Cwm Tryfan. The general level of this valley is considerably higher than the road, from which it is little seen, and as the approach to it is over broken and boggy ground, its very existence is unknown to multitudes of those who pass from day to day within a few minutes' walk of the spot. Yet it is one of the most curious in Wales. The explorer, on rounding the shoulder of Tryfan, comes suddenly upon a deep valley of gentle and tolerably regular inclination, half a mile wide, and a mile and a half long—full, from one end to the other, of rounded and polished rocks of the most marked and characteristic aspect. They exist, not by the dozen nor by the score, but by the hundred, and crop out from the moist turf all along the bottom of the hollow, and to the height of several hundred feet along its sides. They are found up to nearly the same elevation along



both sides of the valley, and above a well-defined line they cease altogether. Sometimes they are mere rounded knolls protruding through the turf and peat, but many of them are broad slabs and walls of living rock, hundreds of feet in length, every corner and angle of which has been carefully and elaborately rounded and polished off. More perfect specimens of the *rochers moutonnés* it would be hardly possible even to imagine. Below the level of the glacier boundary, a sharp rock is not to be found, from one end of the valley to the other; and the vast number of the rounded knolls and shoulders, together with the general coincidence in their forms and in the directions of the polished surfaces, affords conclusive proof that they were subjected to the action of one uniform, regular, and constant force. The glacier which filled up this valley must have been, like the glacier of the Aar in Switzerland, remarkable for the evenness of its surface, and for the uniformity of its motion. It must have been almost a *normal* glacier—for there are no sudden contractions of its channel, no anomalous elevations in its bed. The direction of its flow must have been very nearly uniform, from its origin, just beneath the ridge which connects Tryfan with Glyder Fach, to its termination in the broad valley which the Capel Curaig road pursues. Such a conformation is unfavourable alike to the development of a large moraine, and to the existence of that excess of pressure against the sides and bottom of the glacier channel which causes the deepest striations of the polished surfaces; and hence these indications cannot be expected to be found of so striking and unmistakeable a character as in the "Cwm Dyll," the great hollow of Snowdon, with its irregular bed and contracted orifice, or in the narrow outlet of the gorge of Aberglasslyn. Nor is the rock of a kind favourable to the preservation of the minuter traces of glacier action. Still, some may be seen of a peculiarly interesting and instructive nature. The extreme regularity of the bed of the glacier, the unusual absence of all disturbing or anomalous conditions, has given rise to the formation of striæ of great length and regularity. Some of those which score the rounded rocks on the southern flank of the valley are as much as fifteen or twenty feet long, or even more, and very distinctly marked. They are the more interesting as they inter-

sect the lines of stratification, and are crossed at right angles by the superficial markings caused by the dripping of water. In one or two places, again, in the bottom of the valley, similar definite striæ are to be found, clearly intersecting at different angles the lines of stratification and cleavage, and the furrows worn by water. From the upper end of the valley the view is very striking. You stand upon the shore of that ancient sea of ice which has now melted from the sight, and can define with precision the limits which bounded it on every side; and you look down upon a succession of worn and rounded surfaces which, though upon a smaller scale, are hardly less curious or characteristic than the old glacier bed of the Höllenplatte, which is crossed by the traveller from Meyringen to the Grimsel.

While one considerable glacier thus poured from the eastern base of Tryfan, one of immensely greater extent — so long, indeed, that it would bear comparison with many of the existing glaciers of Switzerland—streamed down to the north-west, occupying for many miles the valley of Nant Françon. This glacier had its origin in the romantic amphitheatre of rocks and precipices which surround Lake Idwal, one part of which is well known as the “Twll Du,” or “Devil’s Kitchen,” and extended for at least five miles down the valley towards the spot on which Bangor now stands. The rounded and striated rocks which still tell the history of this glacier are to be found in considerable abundance, and of very characteristic forms and aspects, all along the vale of Nant Françon. No better specimen of a *rocher moutonné* exists in Switzerland than is to be seen on the left hand of the traveller who is descending the valley, at the bridge just below Lake Ogwen, and within a few feet of the road.\* On the other side, the rocks rise precipitously above the road, and the glacier must have been borne with great force against the wall of rock which there checked its progress and altered its direction. Although the rock is not of a very durable kind, it is conspicuously rounded to a height of some 250 feet, where the limit of the glacier level is apparent. The upper rocks overhang the

\* There is a beautiful photograph by Mr. Fenton, lately published, of the Vale of Nant Françon, seen from the bridge, in which these rounded and polished rocks are admirably pictured.

lower, and are very rough and jagged, without a trace of rubbing. Below the road, on the left hand, terrace after terrace of rock is rounded and smoothed. This is the part of the valley where the glacier traces are most prominent and striking. Here, they actually obtrude themselves upon the eye; but they do not cease for many miles. The gently descending line of the glacier level may be easily traced from the road along the opposite side of the valley, the smoothing action being the more apparent from the contortion of some of the strata, as seen in the upper and unworn faces of the rock. Between five and six miles from Bangor is a very interesting group of rocks which crop out from the turf in a little wood above the road. They formed somewhat of an elevation in the glacier bed, and have consequently been subjected to severe pressure. They are worn very round and are polished quite smooth, and the striæ are most distinct, passing sometimes up-hill, sometimes down-hill, over the undulating surfaces, with the characteristic slight deviations from general parallelism. The weather-marks for the most part cross the striæ nearly at right angles.

The most striking evidences of glacier action, however, are to be found in the great hollow of Snowdon, which is literally full of them. For some distance above the Copper Lake, almost to the bottom of Nant Gwynant, they stare the traveller in the face at every step. The "Cwm Dyll" was one vast expanse of ice, from whose bosom the peak of Snowdon rose to the height of some 1000 or 1200 feet at the most. Grib Goch, Grib-y-ddysgyll, Snowdon, and Lliwedd formed an amphitheatre of mountain peaks enclosing the great Snowdon glacier, as the chain of the Aiguille Verte and the Aiguille de l'Echaud guard the Jardin and the Glacier du Talèfre—names probably more familiar to most readers than those of the subsidiary peaks in our own great mountain range. A large proportion of the rock in the basin of the Snowdon range is very hard and smooth, and has preserved in singular freshness, even the minutest scratches. It is curious to trace, as we descend from the summit of Snowdon into the bosom of the hollow, the gradually diminishing inclination of the glacier and its increasing pressure, as marked by the diminishing slope and deeper *intaglio* of the striæ. The moraine also of this

glacier is wonderfully perfect. The cart-road from the now abandoned copper-works is cut partly through the lateral and terminal moraines; and the sections might, save for the different geological character and the smaller size of the blocks, be that of the ancient moraine of the Mer de Glace between Les Tines and Lavanchi in the valley of Chamouni. There is the same utter absence of sorting in the disposition of the materials, and the same angularity in individual blocks—the whole being cemented together by a fine deposit of grit and sand. To use the words of Professor Forbes, in his description of the Chamouni moraine—“we find the mound to be almost entirely composed of detached fragments, rough and angular, or only rounded by partial friction, and accumulated in the utmost disorder, mingled with sand, without any appearance of stratification.” Among the fragments of stone exposed by the cutting, are some very interesting ones. They have originally belonged to the bed, or to the containing wall of the glacier, much higher up, from which they have been detached after being highly polished and deeply striated; and being now uncovered, display the notchings and scorings, not, of course, in their proper and original directions, but just as they happen to have fallen when the stones were deposited in the places they now occupy.

It must have been a strange scene of desolate magnificence that North Wales presented at the epoch we are speaking of. There were Snowdon and his associated peaks, the centre of one vast system of glaciers, pouring down on every side, east, west, north, and south—the Vale of Llanberris choked with ice, and fed from the heights and recesses on either side—a great glacier taking its origin in the deep basin between Snowdon and Lliwedd, streaming into the valley of Nant Gwynant, diverted, a mile or two above the site of the sleepy little hamlet of Beddgelert, by the opposing rocks at the lower extremity of Llyn-y-Ddinas, and at length struggling through the narrow gorge of Aberglasslyn, rounding and scoring its rugged sides to the height of hundreds of feet. Another great glacier probably descended through the deep inlet which reaches from below Llanberris to the very heart of Snowdon, extending to within four or five miles of the present coast-line, and leaving records of its passage which to this day

are apparent on every uncovered surface of rock along the Llanberis and Caernarvon road. Nor did the Snowdon glaciers, though the greatest, constitute the only glacier system in Wales. It is certain that, from the group of the Glyders and Tryfan, no less than three glaciers—one of vast extent—poured into the vales and plains below; and probably round every peak or group of nearly equal height, and whose masses are broken into those deep hollows and amphitheatres which are so favourable to the collection of a reservoir of snow—and in a climate of variable, temperature, to the consequent development of glaciers—similar ice-streams must have filled up the valleys and choked the gorges in every direction. The great peculiarity of this scenery must have been the small elevation of the peaks and mountain ranges above the general level of the glaciers. In Switzerland, the summits commonly tower for thousands of feet above the highest parts of the highest glaciers, properly so called; and the great glacier basins and reservoirs are commonly bounded by huge *arêtes* of bare and rugged rock, specked only with snowy deposits, such as the ranges which hem in the glacier de l'Echaud, the central tributary of the Mer de Glace, or which block up the extremities of the Glacier of the Aar and the Lower Glacier of Grindelwald. In Wales, the corresponding heights must have been measured by hundreds, instead of thousands, of feet, for many of the glacier basins themselves lie high; and in this respect, despite the magnificent effect of such a wide expanse of snow, and of broken and crevassed ice, the difference must have been unfavourable to the grandeur of the scenery. Something of the same kind may be seen in the northern glaciers of Norway, though the heights which surmount them are higher above the glacier level than was probably the case in North Wales; and there is no reason to suspect the existence in Wales of those vast fields of snow whose aspect and distinguishing peculiarities are so essentially different from those of glaciers, and which give to the scenery of Norway a character so unique and extraordinary.

THE END.



